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ABSTRACT

This document presents an analysis of the total costs for operation of degree programs during 1972-73. The direct instructional costs for all courses provided by the Basic Science departments and the Schools of Allied Health, Medicine, and Dentistry are determined through standard-format budget review, faculty interview, workload study, and effort reporting. These direct costs are combined with indirect administrative and capital expenses to obtain a total Medical Center cost. Preprofessional course costs and internship costs are obtained from other educational facilities to provide a total cost per student. The cost data are used in a computer-based cost simulation modeling system to test the economic benefits of course-sharing in new degree programs. The model testing supports a unified faculty decision to establish a new operational base of degree programs with one common goal so that students may be served through a core curriculum. An appropriate core curriculum is proposed, and the ramifications of its adoption are discussed. (Author)

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FINAL REPORT

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National Institutes of Health
Division of Allied Health Manpower

CORE CURRICULUM AND PROGRAM COSTING

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INTRODUCTION

In order to provide a proper perspective for this report, it is necessary to discuss the circumstances related to the performance of contract responsibilities. The work was performed in conjunction with the emergence of the School of Allied Health Professions, and consequently, it was actually for a twofold purpose: (1) to fulfill contract responsibilities, and (2) to help develop and establish the character of the School. The work was not performed objectively, i.e., removed from the actual circumstances connected with the day-to-day operation of the School; rather, it was performed while having a direct response to the day-to-day operations of the School and affecting the character of the evolving School. The School of Allied Health Professions exists within the Medical Center of the University System, and as such, it is subject to the actions and reactions of the administration and faculty members in the Medical Center environment. Similarly, the School is subject to the standard regulations and operating procedures of the University System. The development of a core curriculum and the program costing for the School had to be done, therefore, within these parameters of the environment in which the School existed when the contract work commenced. This environment was a major influence in determining the approaches used in performing the contract work and the eventual outcome of the contract responsibilities.

The professional experience of the Contract Coordinator should also be noted since the development of both core curriculum and costing was done under his direction and control. The Coordinator's background in central planning and budgeting systems development for a major university resulted in his being involved in the action occurring in the School, and using the contract as a tool for the development and evolution of School policies. As a long-range planner and as a person experienced in fiscal responsibilities, the Contract Coordinator viewed the contract as an economical opportunity to assist in the development of the School of Allied Health Professions.

It should be noted that the objective of this study was greater than what was simply called for in Contract specifications. A core curriculum for allied health has been developed and proposed, and a costing study has been done. Both of these tasks were done for one specific School of Allied Health Professions. The conditions under which this study was done were not static, but rather were dynamic and purposely so. The School has changed in purpose, direction, and stature as the work has been performed. The costs are those costs reflected only for one year in the existence of the School. Neither the School nor the costs will ever be exactly the same as they have been during this year. So in a sense, this contract report is a type of history in the development of a school of allied health professions; it details the particular problems, limitations and ramifications for action that that School encountered during its year, and the results that these various factors played in the eventual development of the School. The costs are actual costs as they can be best determined; however, they are not to be transposed to any other setting. The costs are changing, and the methods for determining the costs are being changed even now. Noting these facts, let this introduction serve as a caution to those persons who would seek to interpret this report for comparative or projection purposes.

SECTION I

CURRICULUM

Background Information

The School of Allied Health Professions is one of five schools which exist at the Medical Center in New Orleans of the Louisiana State University System. At the commencement of contract activities, the School had approved and in existence three baccalaureate level programs. These baccalaureate programs provided degrees in medical technology, dental hygiene and physical therapy. The School also had one approved graduate program in audiology and speech pathology which did not have any students enrolled, but which did provide clinical services for patients in the metropolitan area. Also, the School had an approved associate level program in dental hygiene. The program in medical technology had been in existence for a number of years and had accrued to the School of Allied Health Professions from the Medical School. The program in physical therapy was engaged in its first year of student enrollment with fifteen students completing their junior year of studies. The dental hygiene program had not yet begun, but it was proposed that a total of thirty students would be enrolled in the combined baccalaureate and associate level programs for the Fall term of 1972.

The School of Allied Health Professions was intended to serve a demand for the Medical Center to produce allied health personnel for Louisiana. The state did not have sufficient allied health manpower available for the amount of services needed in the various health care facilities across the state. Also, there was a widespread interest among students enrolled in the other campuses* of the university system for allied health careers. It had been envisioned that the School of Allied Health Professions would primarily serve to enroll students who had completed one or two years of education at one or several of the other system campuses. Academic administrators on the other campuses, therefore, had developed understandings that the School of Allied Health Professions would serve the needs of their students upon completion of pre-allied health curricula at their institutions.

When the Coordinator arrived in New Orleans and the core curriculum investigation started, programs had been initiated only in medical technology and physical therapy. The dental hygiene program was about to be initiated with a tentative pre-professional curriculum outlined to include the necessary requirements for satisfaction of associate and baccalaureate degree requirements. For course preparation of students entering these programs, the School of Allied Health Professions was subject to the curriculum requirements of the schools that the students had previously attended. In general, students enrolled at the other campuses were pursuing a normal sciences or arts degree program, since no special courses or special plan of study had been

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*The other campuses are located at Baton Rouge, New Orleans, Shreveport, Alexandria and Eunice. Until 1973, these last three campuses were all two-year institutions.

provided for those students who would transfer to the School of Allied Health Professions except for those to the program in medical technology at the Baton Rouge or New Orleans campuses. Consequently, students planning to apply for entry into the School of Allied Health Professions were confronted with uncertainty as to which courses of study they should pursue in order to qualify for admission. Of course, at this time the programs in allied health were still evolving and recommended program pre-requisites were not accurately defined. Because of this lack of communication in the University System, one of the first actions of the Coordinator was to design an interim core curriculum for use as a model program of studies for students intending to enroll in Allied Health. The model also could be used by counselors for advising those students who were enrolling at the other campuses for the first time, so that they could plan a modified pattern of studies providing a freedom of opportunity for enrolling in allied health programs or pursuing the baccalaureate programs on other campuses.

The Coordinator visited each of the two-year campuses in order to advise the deans of the programs currently being offered in allied health and to provide them with the suggested interim core curriculum for use in advising their entering students for the Fall term of 1972. The deans were pleased with this effort to help their students and they agreed to cooperate by adjusting their advising and course staffing to aid those students interested in an allied health career. The Coordinator also spoke with the Dean of the College of Chemistry and Physics of the Baton Rouge campus and the Dean of the College of Science at the New Orleans campus. Both of these men agreed to make use of the interim core curriculum design for advising their students and for staffing their courses accordingly to assist students interested in allied health developments. At this time, no effort was made to change the course content, style or mode of delivery in any courses for allied health purposes; however, the deans did agree that instructors in these courses would be made aware of the fact that a number of their students would have health career interests so that some emphasis could be slanted toward health applications of the course objectives.

The major purpose of these discussions with the deans was to immediately let the other campuses know what the School of Allied Health Professions was providing in the way of degree programs, so that their students could be properly oriented and prepared for transfer to the School of Allied Health Professions. Because of the few programs of study available at that time, the course outline suggested was fairly simple. (See Table I.) Also at that time, the requirements for the programs were still subject to change, particularly for the dental hygiene program. Being too specific in the interim core curriculum in terms of courses required could have resulted in repercussions when the new freshmen were eligible to transfer as juniors.

TABLE I

L.S.U. SCHOOL OF ALLIED HEALTH PROFESSIONS

INTERIM, SUGGESTED CORE CURRICULUM

Recommended Freshman Core Curriculum Courses	Semester Hours: Dental Hygiene	Physical Therapy	Medical Technology
English 1B, 1C	6	6	6
(Inorganic) Chemistry 1B, 2B and Lab	3	8	8
Math 1, 2, or 50		6	6
Biology 1, 2, 3, 4, or Zoology 1, 2	8	8	8
First Aid 70	1		
Community Health 41		2	
Psychology 1 or 51	3		3
Sociology 51	3		
Speech 1 or 51, or Communications 51	3		
Electives	8*	6**	5**
Sophomore Core Curriculum Courses			
History 55, 56, or Political Science 51		3	3
English 51, 52, 55, or 56		3	3
Physics 51, 52, 53, 54		8	8
Microbiology 51		4	4
Organic Chemistry 65, 66, 67			8
Quantitative Chemistry 55			3
Electives		12-14***	3***

(Note: Course code numbers agree in all L.S.U. System campus catalogues.)

Recommended Electives:

* Math 1, 2, or 50; Chemistry 2B and Laboratory

** Sociology 51; Psychology 1 or 51; Speech 1 or 51, or Communications 51; Economics 6 or 55; Geography 1

*** Choose from sophomore recommended History, English, Political Science and Chemistry course; also, Psychology 59, Economics 55

A Review of Existing Programs:

At the time the Coordinator assumed his contract responsibilities, there were three baccalaureate and one associate level degree programs approved and operating with existing facilities. A review of the operational status of each of these departments provides a further insight, and hopefully a better understanding, of the procedures undertaken to ultimately develop an appropriate program plan and curriculum.

Medical Technology:

The baccalaureate program in medical technology had evolved ultimately from the Medical School into the School of Allied Health Professions, and it was the one original operational program when the School was established. The head of the Department of Medical Technology had been serving for a number of years and had refined the program to the point where it was well documented in the Baton Rouge and New Orleans catalogues.

Approximately thirteen hospitals were affiliated with the program for the provision of clinical training necessary for the students. These hospitals had the clinical laboratories and the pathologists necessary to be accredited by the American Society of Medical Technologists so that students graduating from the program could be registered. The hospitals varied to some extent in facilities and equipment available in the laboratories, and consequently, the educational material provided in those laboratories varied somewhat. However, in all hospitals the same basic areas of major importance were covered. These areas included bacteriology, blood banking, chemistry, hematology, histology, mycology, nuclear medicine, parasitology, serology, special chemistry, and urinalysis. All hospitals did not have each of these areas specifically identified as an individual area for emphasis since some areas were combined, but all areas were touched on in the education provided. The department head made it her responsibility to be continually in touch with each of these hospitals through the clinical directors to insure that the appropriate and requisite instruction in each of the clinical areas was being provided for each of the students and that educational objectives were maintained. The department provided a final exam at the end of each term for the students in all clinical laboratories involved in the training program. These laboratories accepted students from baccalaureate programs at institutions other than LSU, but despite this fact, the exams and the grading of exams were available for all students. This examination grading served two purposes. The LSU students received a grade and credit for each area which counted toward their degree total credit accumulation. The areas of clinical hematology, microscopy, microbiology, clinical chemistry, and blood banking were worth a total of 36 credits. Comparing the students' grades from all schools gave the hospitals an opportunity to evaluate the students and their preparation for hiring purposes.

A necessary part of the medical technology program was that each year, through signed agreements between the university and the hospital, a certain number of positions were made available by the hospital for the internship training of the university's students. The medical technology department had maintained a policy of accepting all students who successfully completed their sophomore year into the medical technology program at either the Baton Rouge or New Orleans campus.

However, students were selected for the senior year of the medical technology program based on "merit", which included primarily their grade point average and the completion of specific courses with high marks in pre-professional training. Also, the department head devoted a great deal of time to advising students while they were enrolled on the other campuses. By 1972, the number of students enrolled in medical technology had increased to a total of 64 with approximately 80 projected to enroll in 1973. Consequently, finding a sufficient number of hospital internships for these students was becoming a problem.

The baccalaureate degree requirements for course study prior to entry into the School of Allied Health Professions were well documented at both the Baton Rouge and New Orleans campuses. The program had been in existence for some time and it had been established according to the regular standards imposed for accreditation and approval by the Board of Registry of Medical Technologists of the American Society of Clinical Pathologists. However, because of general degree requirements on the Baton Rouge and New Orleans campuses, the students on each of those campuses necessarily pursued slightly different courses of study. The degree in medical technology was awarded jointly by either the Baton Rouge or New Orleans campuses and the School of Allied Health Professions. Since the student spent the majority of his or her time on another campus than the Medical Center, the other campuses actually awarded the degrees with the School of Allied Health Professions jointly signing the diploma. Because of this situation, the general degree requirements for the other campuses had to be observed by the student seeking the degree.

As the Coordinator provided allied health program information to the two-year campuses of the university system, several problems became evident. As more students became aware of the medical technology program, more would seek entry to the already crowded internship year. As students transferred from the two-year campuses, at sometime prior to their Junior year, they would encounter different curriculum requirements for the program depending on which four-year campus they attended. It was crucially important that students be more aware of these problem possibilities at the same time that the Allied Health opportunities were presented.

Physical Therapy:

The Department of Physical Therapy was initiated in 1971 when fifteen students were admitted, with a second class of twenty students being admitted in 1972. The department had developed contracts with fourteen health-care facilities for clinical internship instruction for students. Physical Therapy provided the contracts with the clinical institutions in order to insure a three-month approved clinical internship opportunity for students upon completion of the didactic course-work section of the baccalaureate program, so that the students could qualify to take the state licensing examination and apply for membership in the American Physical Therapy Association. The physical therapy program was structured as a "2-2 program" with two years of liberal arts and sciences training, with a maximum of accumulation of at least 64 semester hours, being required for admission to the two years of professional education. The students in this program primarily transferred from the Baton Rouge and New Orleans campuses of the LSU System, although

students from other Louisiana universities had been enrolled in the program. Requirements for admission to the program in physical therapy were listed in the School catalogue using the following general terms shown in Table II. The specific courses required for admission were not clear, merely a general description of the disciplines involved was provided.

TABLE II

L.S.U. SCHOOL OF ALLIED HEALTH PROFESSIONS

PREREQUISITE REQUIREMENTS

Department of Physical Therapy - 1972

Satisfactory completion of the following college courses:

Areas of Instruction	Semester Hours
English	9
Biology and/or Zoology (with Laboratory)	8
Chemistry (with Laboratory)	8
Physics (with Laboratory)	8
Mathematics	6
Psychology	3
Electives must include Humanities and/or Social Science	6
Economics, Government, History	3

Not more than six (6) hours of military science/aerospace studies, H.P.R.E., or skill subjects may be counted toward the degree.

Catalogue statements indicated that admission to the program was on a competitive basis; however, it was not noted to what extent a personal predisposition to a career in physical therapy played in the admissions process. What was needed to properly dispose students to a career in physical therapy was for some information regarding the role and professional duties of physical therapists to be made available to students upon entry into the University System. A more detailed list of the specific courses required and/or recommended for admission to the program was also needed. Neither the Baton Rouge nor the New Orleans campus catalogues had specific requirements listed for the department of physical therapy such as they had for the department of medical technology. The two-year campuses had no information. The preliminary or interim core curriculum outline was to be of much use to the two-year and four-year campuses not only to make students aware that such a program did exist, but that it was difficult to obtain admission and that specific courses were required for admission. The School of Allied Health Professions needed to communicate program information to the campus officers and to the students.

Dental Hygiene:

The programs in dental hygiene were scheduled for operation in the Fall term of 1972 in conjunction with the School of Dentistry. Since these were the newest programs in the School of Allied Health Professions, they were not known on the other campuses of the LSU System at all. Information was needed immediately so that students could apply for entry in the initial classes, and other students could take courses to prepare for entry into the programs. The programs in dental hygiene were to be run concurrently as far as the professional or clinical training in the dental section was concerned. Students could transfer into the program after one year or two years of college coursework. The program was designed so that a student transferring after one year could take the two years of professional training for graduation with an associate degree in a total of three years. Similarly, a student transferring after two years could take the two years of professional training and graduate with a baccalaureate degree. As an alternative to these programs, a baccalaureate program had been proposed whereby a student could take one year of preparation, two years of professional training, obtain an associate degree, and even go out to practice in the field for a period of time, before returning to complete a year of college coursework at one of the other LSU campuses in order to obtain a baccalaureate degree at that point. The only courses required for entering the associate level program included chemistry, psychology, english, speech and sociology. It was required that a student complete a minimum of 9 additional hours before being admitted to the associate program. It was recommended that these additional hours be in the area of biology, zoology and first aid with further credit recommendations in mathematics and chemistry, as well as humanities and social sciences also indicated. For those students who intended to enroll in the baccalaureate program, it was recommended that they complete an extra 4 hours in the natural sciences, chemistry, biology or zoology, 3 hours of mathematics, 3 hours of psychology, and 6 hours of social studies. For those students who would be completing the baccalaureate degree after the associate degree, there was an opportunity to spend approximately one semester of study in an area of special interest related to their occupational goals such as dental hygiene, nutritional education, statistics, computer science, public health, etc.

As far as prospective students were concerned, the program descriptions were vague and accompanied with only a minimum of mandatory requirements for admission. As the programs evolved, it was expected that the requirements for admission and the course design would improve. The few basic requirements and a brief explanation of how the programs were intended to operate were presented to the other campuses along with the interim core course outline to be used for advising prospective students. It was hoped that the weaknesses in the program presentations would be quickly resolved.

RE-DIRECTION

During the Spring of 1972, there were great expectations that the School of Allied Health Professions would receive funding from the Bureau of Allied Health Manpower through the Special Improvement Grants system. When it became evident in

May that the School would receive no funds for any of its major new program thrusts that had been planned, a major problem confronted the School. Funds were not available from the University System for initiation of any of the new programs. Consequently, the necessity to bring on new faculty members to plan the programs and to establish an approved curriculum for new programs would not be possible during the 1972-73 school year as had been proposed. At this time, the Coordinator, at a Faculty Council Meeting of the School, asked the various department heads and the dean to consider the long-range and immediate goals of the School of Allied Health Professions. Hopes were that this type of goal review would permit the School to consolidate the use of its available resources, and to investigate new sources of possible grant or foundation funding.

A special faculty meeting was held to review the opportunities for funding, and it became clear that the School needed a definite long-range plan, a way to capitalize on the School's strength and to avoid weaknesses. The review of existing programs in the School showed that the Medical Technology program, while a sound program, was actually removed from the School, both physically and philosophically, since the students, when they were enrolled in Allied Health, were physically located in the various hospitals, and the degree for the program actually was given by another campus of the System. The Department of Dental Hygiene was a new department, not well situated yet, and still in a state of flux as to permanent curriculum and program requirements, long-range objectives for the program and the students, and with a great deal of resources and control of the program actually shared with the School of Dentistry. There remained only one of the three active programs in the School, Physical Therapy, in a position of being clearly identified as an allied health program. The professional education was located solely in the School for two years, although the students did have a three-month clinical internship upon completion of all of their other academic requirements. When the faculty reviewed the purposes of the Physical Therapy program, they found them to be oriented toward (1) direct patient care, and (2) rehabilitation with heavy concern for patient welfare and well-being. The overall purposes of the School were also reflected in this academically and professionally sound program based on a pre-professional curriculum of sciences. It would be a good cornerstone for planning a re-direction of the School of Allied Health.

It was decided that new program offerings for the School would be selected on the basis of coincident goals with the department of physical therapy. The most important factor in this decision was the concept that real strength and unity of faculty purpose in a school of allied health can only be achieved when departments have the same goals and similar means for achieving those goals. While all three existing departments had the general purposes of the School *(". . . to increase the supply of a specific variety of allied health professionals in Louisiana, and to increase the supply of potential teachers for allied health educational programs.") as their purpose, their professional goals, methods, and theaters of operation were all different. To structure a consolidated, progressive faculty, and thereby attain a truly viable School of Allied Health Professions, it was

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*Application for Allied Health Professions Special Improvement Grant, 11-6-72, Page 6.

critical that a unit of the School be composed of departments with the same basic professional goals and overlapping methods for achieving these goals. Communication and sharing by departments within this unit must exist to provide the professional atmosphere students and faculty need.

Physical Therapy, existing with the goals of direct patient care and rehabilitation, would be the initial department of the unit of programs serving those same goals with similar modes of service. Of the other existing programs, Medical Technology could be construed as having the patient care emphasis since the primary purpose of the medical technolcgist is diagnostic service to the patient. The dental hygiene program certainly was rehabilitative and patient oriented. It was therefore generally agreed that the re-direction emphasis of the School was appropriate.

Planning for Program Addition

Because of this re-direction of the School's long-range objectives, further discussions were held as to which programs would be most appropriate for addition to the curriculum. In reviewing possible program additions, it became clear that in the allied health field, certain programs are better suited to the scientific-based, direct patient-care, rehabilitation emphasis than others. Such programs as medical record librarianship, child care and development, health care administration, certain technological programs, etc., could not seek the same goals as the therapy program. It was critical that the School not scatter faculty by attempting to start programs that would not overlap, would not have a great deal in common, or would not seek out one concentric goal.

Based on the above considerations, occupational therapy was the most logical choice for a new program. The occupational therapists have rehabilitation and direct patient care as goals much the same as physical therapists. Although the emphasis in treatment pattern between the two groups is quite different, there are at the same time a number of similarities which permit a great deal of overlap in education. It was proposed that this overlap between programs be taken advantage of by having shared courses, and avoiding duplication of effort and some additional faculty. In conjunction with this approach, the core curriculum for the first two years of the liberal arts program could be suitable for students preparing to enter either of these programs, thereby preserving lateral mobility for the students as well as vertical mobility toward a baccalaureate degree.

An obvious area for program addition was in the field of rehabilitation. One program proposed for consideration was that of rehabilitation counseling. Information received indicated that counseling programs such as this were normally graduate level programs which accepted students with baccalaureate degrees from assorted fields, rather than with the scientific orientation that had been proposed for students in the School of Allied Health Professions. It was also generally believed that the greater maturity of a graduate student would be a critical factor in counseling. The counseling program was dismissed.

Discussions were held with the Rehabilitation Services Administration in Dallas and with persons engaged in rehabilitation sciences baccalaureate-level programs on other university campuses. From these discussions came the original thrust for the development of a patient-advocate rehabilitation science program. This was assuming that the student would partake of the science-based core curriculum and share in some of the upper division courses with the students in physical therapy and occupational therapy, thereby obtaining an unusual knowledge and interest in the direct patient care activities of these professionals as well as an understanding of the rehabilitation process. A program graduate could then serve as a rehabilitation coordinator, the title proposed for the program, so that the patient's interest could be represented during the entire care and rehabilitation process. For example, a rehabilitation coordinator would understand the direct care treatments being provided to a patient by the physician and interpret these to the patient and the patient's family. Once the physician's direct care was completed, the Coordinator would recommend and follow the rehabilitation process providing a source of feedback for the physician as to the success of the rehabilitation, plus serving to coordinate the various types of rehabilitation personnel who might be taking part in this entire process. This program was not accepted. The failure was simply because of the lack of market opportunities for such graduates. Jobs were not available for such persons. No such job descriptions existed in the Rehabilitation Services' files, nor did hospitals have openings for persons with this type of particular skill. It would make little sense to graduate persons such as this if they could not obtain gainful employment. Consequently, the proposed program for rehabilitation coordinators was also abandoned.

Further discussions with persons in the rehabilitation field convinced the Coordinator that a program in rehabilitation sciences that would graduate a generalist at the baccalaureate level could be a feasible addition. A curriculum consultant assisted in this program development, using Contract funds to subsidize the planning of the next program addition, Rehabilitation Science.

In this new program in rehabilitation science, the rehabilitation aspect of the program is to be emphasized through field work, while the viewpoint of the rehabilitation is to be built on the same core curriculum of science courses proposed for students in other programs. The reason for this approach goes back to the rehabilitation coordinator or patient advocate type of idea, based on the philosophy that the understanding of the patient by the professional is directly affected by the type of college preparation that the professional received. Normally, a rehabilitation sciences program would have students admitted to the program from the humanities and arts or social sciences curriculum of the college. This is natural because of the heavy psycho-social aspects of the program. However, the number of students enrolled in the School of Allied Health Professions program is to be maintained at a relatively low level, due to resources available in terms of space and faculty, and in particular to decrease the need for internship positions in the field at social service agencies. Since only a small number of students could enter the program each year anyhow, by couching the prerequisites for the programs in terms of a predominantly science type core curriculum, the number of applicants to the program could be decreased (which would be desirable from the point of view of the school administration, since the number of students who were disappointed in their quest to enter the School of Allied Health Professions would be less). This approach would also provide those people

majoring in a science an opportunity for a patient care or other social service type of application to their career that they may never have had the opportunity to perform otherwise.

This proposed program epitomizes the School of Allied Health Professions objective of producing graduates devoted to direct patient care and rehabilitation services for patients through a training in the sciences to help develop an understanding of the physical problems of the patient plus the rehabilitation processes of treating the patient. The program in rehabilitation science would graduate a social service agent with a new philosophical viewpoint of the patient. It is possible that the patient-coordinator approach to the rehabilitation services would come into being through these rehabilitation science graduates. They would graduate as rehabilitation service generalists who could work in the social service agencies already in existence throughout the area, but at the same time they would provide a different philosophical slant to their work.

There would also be many opportunities for graduate work for the students, as well as opportunities for entry into progressive medical schools that are changing their curriculum and entry requirements. The numbers of persons that could enter this type of program after several years of testing the work experience of graduates could be increased and this could become a major new type of program for all of allied health.

While these developments in program planning were occurring on the New Orleans campus, the Shreveport campus of the LSU System had received approval to become a four-year baccalaureate degree granting institution, making it the third such to exist in the System. With the advent of this four-year baccalaureate status, the Shreveport campus had proposed several allied health-type programs for inclusion in their four-year curriculum. Because of these proposals, the System officers sent out a directive noting that the School of Allied Health Professions in New Orleans was the one school of allied health in the entire System, and that any new programs in allied health professions would have to be approved through this School. Accordingly, the programs proposed by the Shreveport campus were reviewed from the point of view of how they would work in conjunction with the School of Allied Health Professions. Several of these programs were rejected from inclusion in the allied health program offerings because they were not suited to the overall objectives of the School. However, a continuation of the program in Medical Technology, the 3-1 split, was approved, and also a baccalaureate level program in Administrative X-Ray Technology was approved for tentative inclusion in the Shreveport campus program. This x-ray technology program would combine three years of liberal arts and business administration training with a final year of clinical internship provided under the direction of radiologists in Shreveport, who were also members of the Medical Center faculty. It was thought that by enlisting the services of the radiologists throughout the state at this time, clinical internship opportunities for the School of Allied Health Professions' students would be assured, thereby making possible the initiation of a program in radiological sciences. This program would have the direct patient care aspects of the other programs, but would be less oriented toward the rehabilitation process.

Another consultant was hired under the Contract to consider the possible initiation of a program in radiological sciences for the School of Allied Health Professions. The procedure he proposed was to first establish a program in

radiation therapy, then a program in nuclear medicine, and then a program in health physics; each to be phased in one program after another, in succeeding years. The curriculum proposed to support these program plans was heavily slanted toward radiological techniques, physics, radiation physics, mathematics and dosimetry, nearly all of which were specialized courses. The problems with this was that the courses in the particular radiological laboratory techniques could only be taken on the Baton Rouge campus in a special laboratory. Also because of the heavy emphasis on physics and radiation-oriented types of instruction, there was little opportunity for sharing with other allied health professionals, or for pursual of the humanities and social science courses the student would need for the properly broad background necessary to satisfy the general degree objectives of the School of Allied Health Professions.

This program as proposed was not accepted for inclusion into the allied health program offerings. However, preliminary discussions have been held with the Dean of the College of Chemistry and Physics of the Baton Rouge campus regarding possible initiation of a program in radiation therapy for a small number of especially interested students at that College. Once a student has made use of the special facilities and the specialized instruction available in Baton Rouge, the School of Allied Health Professions could assist in an appropriate internship placement at a health facility. Another 3-1 program is a possibility for this area, but program details are yet to be resolved.

Presently another program is being considered for inclusion in the School of Allied Health Professions' program offerings. This program is to be in Medical Dietetics. Preliminary discussions have been undertaken with the personnel on the Baton Rouge campus in the Department of Nutrition and Home Economics, and possibilities do exist that a program could be developed. The persons on the other campuses are looking toward the School of Allied Health Professions to provide clinical affiliations for internship training and would prefer a 3-1 type program, as proposed for radiation sciences. The School of Allied Health Professions, on the other hand, would insist on at least a 2-2 program for Medical Dietetics. This is necessary so that the department and the degree may be firmly established in the School to insure the goals of the program overlap with those of the other baccalaureate programs. There is a possibility of overlap in interest with all of the other programs in the School, particularly inasmuch as courses in nutrition are concerned. What the School of Allied Health Professions has been working toward is the sharing of professional interests among the programs so that an understanding and a unified interest in each profession's well-being is developed by the faculty and in turn by the students while they are enrolled in the School. Dietetics, since it could provide this type of course overlap and sharing in direct patient care and rehabilitation, qualifies for inclusion as another new program in the unit of programs for the School. Only preliminary talks have been completed for this program, however, it is hoped that the program could be added to the School within two years.

As part of this re-direction of overall goals of the School of Allied Health Professions, it has been recommended that the Department of Medical Technology consider discontinuing its 3-1 program with the other campuses of the System and instead, try developing a 2-2 program similar to the other departments in the

School of Allied Health Professions. Only discussions regarding the possibility of this type of switch have occurred so far; however, some plans regarding the possible curriculum outline for this program have been developed. Naturally, a number of laboratory resources and considerable laboratory space would have to be made available by the Medical Center for the School of Allied Health Professions before such a switch in program timing could be made. Preliminary discussions with the Chancellor of the Medical Center have indicated his support of this type of program planning so it is hoped that the Medical Technology program will eventually become a 2-2 program and more firmly ensconced in the total pursuit of the School of Allied Health Professions goal.

Proposed Freshman-Sophomore Core Curriculum

Obviously it was necessary for the School of Allied Health Professions to consider its overall objectives and long-range plans in order to determine what programs should be added to the School, and hence be served by a core curriculum. As noted previously, an interim core curriculum had been outlined and delivered to the various campuses of the LSU System providing transfer students for the program in allied health. However, the three programs existing in allied health really had very little in common and in fact, only one of the programs was wholly contained within the School of Allied Health Professions. The interim core curriculum had successfully served its purpose, largely because it was continually supported through inter-campus communications between Allied Health and student counselors on campuses.

As the re-direction and program planning in the School of Allied Health progressed, the need for a permanent core-curriculum became critical. Students who were planning to enter the L.S.U. System in 1973 needed a stable course planning guide that would insure appropriate preparation for a possible career in the allied health professions. After considering the re-direction in program emphasis and reviewing the inter-campus counseling experiences, the School of Allied Health Professions recommended the pre-professional core-curriculum shown in Table III for use by students enrolled at L.S.U. campuses.

TABLE III

L.S.U. SCHOOL OF ALLIED HEALTH PROFESSIONS

RECOMMENDED CORE CURRICULUM FOR BACCALAUREATE PROGRAMS

Recommended	Semester Credits Per Program				
Recommended Freshman Courses	Medical Technology	Dental Hygiene	Physical Therapy	Occupational Therapy	Rehabilitation Science
English Composition	6	6	6	6	6
Chemistry (General Inorganic, Lab)	8	8	8	8	8
Mathematics (Algebra or Trigonometry, Analytic Geometry and Calculus)	5-6	5-6	5-6	5-6	5-6
Biology (General with Lab) or Zoology (Introductory with Lab)	8	8	8	8	8
Psychology (General or Introductory)	3	3	3	3	3
Sociology (Introductory)	3	3	3	3	3
Survey of Allied Health	1	1	1	1	1
Total Credits	34-35	34-35	34-35	34-35	34-35

Recommended Sophomore Courses	Medical Technology	Dental Hygiene	Physical Therapy	Occupational Therapy	Rehabilitation Science
English (Literature, Poetry, Exposition)	3	3	3	3	3
Physics (General with Lab)	8	8	8	8	8
Educational Psychology		3	3	3	3
Psychology Electives (Child, Adolescent, Adjustment, Social)		3	6	6	6
Public Speaking	3	3	3	3	3
Community Health Problems			2	2	2
Organic Chemistry (General with Lab)	8	6-8			
Chemistry (Analytical)	3-5				
General Microbiology, Genetics or Bacteriology	3-4				
Social Sciences and/or Humanities Electives*	3	6	6-9	6-9	6-9
Total Credits	31-34	32-34	31-34	31-34	31-34

Recommended Electives:

*Anthropology, American History or Government, Economics, English Literature, Cultural Geography

Some comments are necessary to fully explain the core curriculum presented in Table III. First it should be pointed out that the courses are recommended for students who hope to pursue a baccalaureate degree program in the School of Allied Health Professions. All of the courses required for admission to any of the baccalaureate programs are included in these recommendations. All of the courses recommended are currently provided on all of the LSU campuses with the exception of the "Survey of Allied Health" which should be provided by School of Allied Health Professions' faculty. Another note is that the recommended freshman courses in psychology and sociology may also be taken by students in their sophomore year as well as their freshman year with a social science or humanities electives substituted on the freshman level. The recommended courses for students interested in the dental hygiene program may seem to be too well defined for that program as it presently exists; however, the baccalaureate curriculum for that program has been undergoing revision to insure that program graduates would have an opportunity to gain admission to the School of Dentistry.

The recommended core curriculum is exactly the same for all five baccalaureate programs for the freshman year. As noted above, this does not necessarily mean that all students have to follow this recommended course of studies during their first year of college; however, it does guarantee that if a student should follow this course of studies, both horizontal and vertical mobility, not only for allied health professions, but for baccalaureate programs in the college would be preserved. In the sophomore-level recommended courses, it can be readily seen that the only real differences in recommended course selection are for the medical technology and dental hygiene programs. The courses in analytical chemistry, organic chemistry and the biological sciences are required for the program in medical technology. Similarly, the course in organic chemistry is necessarily required for the program in dental hygiene if students are to qualify for admission to a school of dentistry. Beyond these two programs however, the other three programs have exactly the same recommended pre-professional courses. As was discussed above, these last three programs represent a new unit of the School of Allied Health Professions in which it is hoped that the professional interest of the students and their ultimate goals can be made to coincide or overlap to a large extent. Consequently, the core curriculum was planned to afford this type of overlap opportunity from the day the students enter college.

Several other items should be noted in regard to this core curriculum. In Table IV the recommended freshman-year curriculum for the associate level program in dental hygiene is outlined.

TABLE IV

L.S.U. SCHOOL OF ALLIED HEALTH PROFESSIONS

RECOMMENDED PRE-PROFESSIONAL CURRICULUM

Associate Degree in Dental Hygiene

Recommended Freshman Courses	Semester Credits Dental Hygiene - Associate Program
English Composition	6
Chemistry (General)	3
Mathematics (Albebra and/or Trigonometry)	3
Biology (General with Lab) or Zoology (Introductory with Lab)	8
Psychology (General or Introductory)	3
Sociology (Introductory)	3
Public Speaking	3
First Aid	1
Survey of Allied Health	1
Total Credits	31

The courses outlined in Table IV actually differ very little from the core curriculum recommended for the baccalaureate programs in allied health. The only real differences are the recommended one semester or decreased number of credits for chemistry and mathematics with the courses in public speaking and first aid replacing some of these credits. A student who had pursued the standard core curriculum could easily take the courses in public speaking and first aid during a summer term if the student should wish to enroll as an associate-level student in the dental hygiene program. A student who had followed the recommended associate program core curriculum during the freshman year who wished to continue studies and then to enroll in a baccalaureate degree program could take the additional recommended chemistry or mathematics courses either in the summer term or in the sophomore year in place of the course in public speaking.

The core curriculum was reviewed at a special meeting involving the department heads from the School of Allied Health Professions and representatives from other campuses. Following the meeting, an announcement of the core curriculum recommendations has been included in the new issue of the School's catalogue. Preliminary reports from the counseling centers at the Baton Rouge and New Orleans campuses indicate that the core curriculum has been well received, and is serving its purpose for student course planning. The School of Allied Health Professions is continuing to maintain its inter-campus communications with counselors to convey the spirit of professionalism that the School desires for its students.

Program Planning Problems

It was necessary to establish a plan for program addition before an appropriate and practical pre-professional core curriculum could be developed. As the curriculum outlines in Tables III and IV indicate, it is possible to recommend a very appropriate core curriculum when the programs offered are all directed toward the same overlapping goals. It must be recognized, however, that program planning and goal setting are not easily accomplished. There are problems of a special nature to be considered when initiating or renovating programs in the allied health professions. Aside from considerations of the philosophy regarding the necessity for different units in a school so that the various types of programs can overlap and cooperate in their similarities, another factor to be considered in initiating new programs is accreditation requirements. The School of Allied Health Professions would not initiate a program which could not be accredited by the national professional organization, or from which the graduates could not be registered or licensed to practice their profession. In order to maintain this rule, department heads always obey the letter of the accreditation law within the guidelines announced by the national organizations. Because of this, it is extremely difficult to have the department heads even consider the possibilities of changing an approved and existing curriculum for fear of national association retaliation. Sharing courses between programs, changing course contents so as to provide for course sharing, or broadening the scope of a curriculum to permit students to elect new courses outside their specified course plan are all subjects to be avoided, not welcomed.

A major problem in attempting curriculum sharing between various allied health programs is the great reluctance to do anything that might not be exactly according

to the wishes of the national professional organizations. For educational administrators and planners, this problem could result in many unhappy encounters with department heads and an eventual paralysis of a school. Another aspect of their problem of fear of the national association is that the dean or other administrative personnel do not have sufficient ready knowledge of each profession's mandates to be able to override a department head's objections based on the professional obligations an association imposes. While the administration may propose changes in the curriculum to provide efficiency of operation, or more opportunity for the student to broaden perspective and pursue something novel, it is relatively easy for the department head to decline this proposal saying this would not be in the professional interest of the students. The department head is the professional who has practiced in the field and really knows and understands what the students need to be successful. The dean can only seek to coordinate and to promote cooperation among the department heads. He/she cannot dispute professional expertise. There can exist, therefore, a critical point where the authority and the overriding responsibility of the dean comes into conflict with the professional obligations of the department head.

If a dean attempts to force a department through the authority to distribute budget funds or the power of controlling promotions and committee assignments, etc., within the school, he/she can also be neutralized to a great extent by the association. For example, the accrediting association may have ground rules for establishing an accredited program in which it states that three full-time faculty members have to be hired in a department before the first student enters the door, thereby assuring that sufficient faculty are secure in full-time teaching positions despite fluctuations in student involvement in a program.

Because of these circumstances, communication between the dean and the department heads is of absolute necessity. It was only through continued faculty involvement that an agreeable long-range plan for program addition was developed. Voluntary sharing of faculty resources and course objectives by the department heads made it possible to outline a third-year curriculum plan for the School of Allied Health Professiona. This plan was another critical portion of core-curriculum development.

Program Sharing of Third-Year Courses

Because of the philosophy and program plans developed in the section above titled "Re-direction", it was possible to develop not only a pre-professional core curriculum, but also a schedule for the sharing of courses among the programs in the upper division or third-year curricula. Since it is planned that three of the five baccalaureate programs for which the pre-professional core curriculum was outlined in Table III will share similar goals, the programs should also share courses of instruction at the professional level. It is unfortunate that the program in rehabilitation is still in the planning stage; however, the curricula for the other programs have been established and approved by the curriculum committee of the School of Allied Health Professions. Based on the approved sharing of courses and the projected sharing of courses with the new department of rehabilitation science, it is possible to provide an outline of courses that may be shared

at the third-year level by students who are enrolled in each of these departments. The other two baccalaureate programs also existing in the School are undergoing curriculum revision and re-direction of total objectives and goals as was outlined above. As was pointed out there, the Department of Medical Technology is planned to change to a 2-2 curriculum from its existing 3-1 curriculum split and the Department of Dental Hygiene baccalaureate program is being re-directed toward insuring students an opportunity to enroll in the Dental School. Consequently, it is possible for these two departments to also be included in this course-sharing concept.

To illustrate how the third-year course sharing plan for the various curricula in the School of Allied Health Professions is visualized, the courses which will be available for possible sharing by students enrolled in the various programs are outlined in Table V.

TABLE V

L.S.U. SCHOOL OF ALLIED HEALTH PROFESSIONS

PROPOSED SHARING OF PROFESSIONAL COURSES

	Semester Hours Per Program				
Course	Physical Therapy	Occupational Therapy	Rehabilitation Science	Dental Hygiene	Medical Technology
Human Anatomy	5	5			3
Human Physiology	4	4			4
Neuroanatomy	3	3			
Pathology	3	3			3
Functional Anatomy	4	4			
Clinical Psychiatry	3	3	3		
Medical Conditions	3	3	3	3	
Tests and Measurements	3	3	3	3	3
Orthopedics	3	3			
Human Development	3	3	3		
Psychosocial Dysfunction	4	4	4		
Correlative Conference	1	1	1	1	1
Neurosciences	3	3			

The courses listed in Table V have been approved and will be available for student participation. A description of content of each of these courses is provided in Appendix 1. The majority of these courses will be shared by the programs in Physical Therapy and Occupational Therapy, and the department heads of these two programs have already agreed to this sharing. Not all of these courses necessarily must be shared, rather some may be taken as electives by students enrolled in the various departments. Students enrolling in the new program in Rehabilitation Sciences will have the opportunity to participate in the courses currently available. It is hoped that this type of sharing, combined with the pre-professional core curriculum background, will dispose all students philosophically toward a greater professionalism. Professionalism in the sense of a greater willingness to share

responsibilities in the treatment of the patient, to have a better understanding of what other professionals are doing in regard to the patient, to pursue opportunities for informing the patient and the patient's family of the various overlap of benefits in rehabilitation processes, and finally, to continue to acquaint the physicians with the rehabilitation processes that the patients are undergoing.

The programs of dental hygiene and medical technology have also been included in Table V although the number of courses that the students in these programs may share is somewhat tenuous. There is a plan to encompass the program in dental hygiene entirely within the School of Dentistry and thereby withdraw it from Allied Health Professions' control. If this plan takes effect, there is a good chance that sharing of courses with allied health students could be discouraged. The long-range plan for revising the curriculum in medical technology to a two-year pre-professional, two-year professional program with the second two years being entirely under the control and direction of the School of Allied Health Professions has not yet passed the preliminary discussion stage. The courses outlined for sharing with the Medical Technology students in Table V would only be shared if this program revision was to take place. Such a program revision is at least several years in the future. The sharing emphasis in Table V is on the first three programs in physical therapy, occupational therapy and rehabilitation sciences. It is these three programs which have been designed as the basic unit of departments on which the future of the School of Allied Health Professions will be based. The possibility for sharing these courses at the third-year level can only help to strengthen the School, the departments and the instruction.

Curriculum Review

Section I has briefly reviewed the overall changes in short and long-range objectives that the School of Allied Health Professions of the Louisiana State University Medical Center underwent during 1972-73. The Contract activities were the catalyst which sparked this revision and re-direction of the School in its approach toward the addition of programs for students. These long-range changes are reflected in the final recommended pre-professional curriculum outline shown in Table III. The department heads in the School of Allied Health Professions agree that this type of pre-professional preparation would be most suitable for all students seeking entry into their curricula. The deans on the other campuses of the LSU System, who will provide the courses outlined in the pre-professional curriculum, agree that the courses are available and that no serious difficulties or changes will be necessary on their campuses to provide the necessary instruction. Some changes have been made in permitting freshman students to pursue sophomore level courses, but the major changes on the other campuses are in the area of counseling. Information on what the School of Allied Health Professions represent and where its programs lead, as well as what course of studies to pursue for entry into the School of Allied Health Professions, is now made available to students when they enter the LSU System. This information should not change radically any time in the near future, and students who pursue the recommended pre-professional curriculum will preserve not only their opportunity to enter any program in our School of Allied Health Professions, but also their opportunities to obtain a baccalaureate degree from other System colleges.

The core curriculum has been designed to serve the long-term goals of the School of Allied Health Professions, including long-term opportunities for students. At the same time, the core curriculum interferes only minimally with the ongoing instruction and activities on other campuses and presents no real increase in workload except for the size of enrollment in certain courses. The core curriculum provides maximum flexibility for students. While the curriculum is science-based, it also provides sufficient coursework in the humanities and social sciences that students may participate in social service endeavors. Perhaps most important, it is hoped that by following this pre-professional curriculum, students will have a predisposition toward medical rehabilitation that will enable them to be outstanding practitioners in their field.

SECTION II

COSTING

Background Information

A number of factors had to be taken into consideration in performing the costing portion of the Contract work. The School of Allied Health Professions does not have its costs contained within the boundary of the School's budget. A number of other areas contribute in varying amounts to the total costs entailed by each of the Allied Health educational programs. Consequently, the costing was developed in sections, with each area's contribution being added until an aggregate total cost per degree program for the entire School of Allied Health Professions was reached. Direct instructional costs were calculated from within the School of Allied Health Professions, the basic science departments, the Medical School and the Dental School. Further costs attributable to the total degree programs included the pre-professional course costs, as determined from data obtained from the Baton Rouge campus of the LSU System, and the costs associated with the internship portion of the degree programs. Clinical training costs for the dental hygiene students were estimated from data made available by the School of Dentistry and the dental faculty who participated in teaching. Since the Department of Medical Technology has hospital laboratories throughout the state which provide clinical affiliations necessary for student instruction, an extensive sub-study was necessary to identify the costs associated with that particular type of instruction. Estimates on projected internship costs for the students in physical therapy were provided by the internship coordinator in that department, since that phase of program instruction is only currently underway. Administrative, physical plant, and other indirect or "overhead" costs associated with the provision of instruction in the various Medical Center schools also were determined. All of these contributing costs had to be assembled in order to approach the total cost for each of the allied health programs.

All costing reported in this section represents information obtained from data which evolved during the 1972-73 fiscal year in the School of Allied Health Professions at the LSU Medical Center. Consequently, only the three programs (Physical Therapy, Dental Hygiene and Medical Technology) which were in active existence at that time could be totally costed for that period. The costs are based to a large extent on self-judgment through self-reporting by faculty members and consequently are subject to some error. The costs as developed in this section contain comments, explanations, and criticisms concerning the methods employed for determining cost estimates. The final costs reported represent the Coordinator's best judgment as to what is the most accurate assignment of cost to the School of Allied Health Professions and its programs for the fiscal year studied.

Costs Budgeted Within the School of Allied Health Professions

The majority of the costs associated with each of the educational programs were budgeted within the School of Allied Health Professions. Although the fiscal year-end closing statements for total funds expended by each department are not available, the amount of funds budgeted by department is an accurate representation of the amount of money used to operate the educational programs during the fiscal year 1972-73. The total amount budgeted for the School includes each instructional department plus the Department of Speech and Hearing, which did not have an active educational program, plus the administrative costs associated with the operation of the School. The total cost for all departments in the School must be noted so that an accurate distribution of administrative expense may be made back to the educational programs.

The first departmental budget to be reviewed is that of Physical Therapy. The University operating budget for this department during 1972-73 included $53,600 in faculty salaries, plus $5,283 in staff salaries and $5,000 in indirect expenses for travel and supplies, for a total of $63,883.

Besides the University funds, the department also had funds made available by several Federal agencies and the State of Louisiana. The U.S. Public Health Service, through the Bureau of Allied Health Manpower's Special Improvement Grants program, provided $43,454 to be used for faculty and staff salaries, special equipment and renovation of laboratories. An additional sum of $17,202 for the purchase of special laboratory equipment and renovation of department facilities was provided jointly by the Louisiana Commission of Higher Education and the Department of Education through the Higher Education Act, Part A, Title VI. These additional funds of $60,656 brought the total departmental budget of Physical Therapy to $124,539. The University portion of this total was considered as direct instructional expense as was $9,400 of the Federal money used for faculty salaries. The total departmental instructional program budget was therefore $73,283.

The Department of Dental Hygiene began the 1972-73 fiscal year with an operating budget of $28,000 for faculty salaries, $5,054 for staff salaries and $900 for travel. Prior to the end of the year, however, $3,000 in additional funds were included in this salary category to supplement the salary of dental faculty members teaching in the program. A faculty vacancy was filled and the secretarial salary increased so that at the end of the fiscal year the total departmental budget was $38,683.

The Department of Medical Technology had $16,900 in faculty salaries budgeted, plus $6,489 in staff salaries. Along with these salaries, there was $2,500 in travel funds, $3,000 in supplies and $4,539 in equipment budgeted for this department. This gave a total departmental budget of $33,428 which was considerably less than what possibly could have been budgeted due to the fact that all of the faculty members in this department were on joint appointments with other departments. Only the departmental head had the majority portion of salary provided by the School of Allied Health Professions. Two faculty members are located on the Baton Rouge campus and have the majority of their salary payments provided by the College of

Chemistry and Physics. A number of faculty have adjunct appointments, i.e., appointments to participate in the clinical instruction portion of the program. The department does not pay any salary for their efforts. It should be noted that much of the equipment used by the students in the Medical Technology clinical instruction is provided by hospitals in which the students obtain their education.

There are several other departments in the School which contribute to the overall budget expense. The Department of Audiology and Speech Pathology has been approved to provide a master's program in Audiology and Speech but as yet has no students enrolled. This department does provide clinical services in both Audiology and Speech for the metropolitan New Orleans area and for patients throughout the state. Consequently the department has an operating budget of $9,500 for direct clinical expenses and $85,022 for faculty, staff, travel and supplies. The $9,500 in direct clinical expense is balanced out in income from patient fees, so this amount may be deleted from the School's operating budget.

The Dean's Office account for the School had a total budget of $35,418, excluding the Bureau of Allied Health Manpower's Contract funds. These administrative costs were distributed back to each department based on the departmental share of the total budget. The effect of this distribution is shown in Table VI. The "internal budget" figure for each educational program represents the direct program cost to the Allied Health budget.

TABLE VI

L.S.U. SCHOOL OF ALLIED HEALTH PROFESSIONS

DISTRIBUTION OF ADMINISTRATIVE EXPENSE TO DEPARTMENTS

Department	Budgeted Funds	% of Total	Administrative Cost	Total Internal Budget
	(A)	(B)	(C)	(A) + (C)
Physical Therapy	$ 73,283	31.8	$ 11,263	$ 84,546
Dental Hygiene	38,683	16.8	5,950	44,633
Medical Technology	33,428	14.5	5,136	38,564
Audiology and Speech	85,022	36.9	13,069	98,091
Total	$ 230,416	100.0	$ 35,418	$ 265,834

Costs Related to Basic Science Instruction

The "Basic Science" departments of the LSU Medical Center include Anatomy, Biochemistry, Biometry, Microbiology, Pathology, Pharmacology, Physiology, and Tropical Medicine and Parasitology. Four of these departments provide instruction through special courses designed for the students enrolled in allied health programs. The basic science departments do not constitute a School of the Medical Center; rather, faculty in these departments are regarded as members of both the Medical and Dental Schools. The departments are structured administratively as a central pool of instructional services available by request from the schools. The operating budgets for the basic science departments are obtained through charges to the schools for the services provided. Accordingly, those departments which provided instruction for the School of Allied Health Professions issued charges for those courses.

The Coordinator did not believe that the charges issued by the basic science departments reflected an accurate cost for the instructional service provided. A special questionnaire was designed to develop a more accurate analysis of true instructional costs. (See Appendix 2.) This document provided a standard, comparable basis for cost estimating by the department heads. The department heads' estimates of costs, accompanied by their comments, were used by the Coordinator to obtain an approximate instructional cost for each basic science course provided. These costs, and the rationale for their development, are detailed below.

Faculty self-reporting of their percentage of total working time devoted to instruction and activities directly related to instruction, was deemed to be the best method for obtaining estimates of instructional salary costs for the individual courses. In this cost study there were two problems which probably decreased the accuracy of this approach. First, because of the system whereby the basic science departments charge the Schools for instruction, investigation into actual time devoted to teaching was a sensitive issue. Individual instructors could not be directly questioned concerning distribution of effort without department head approval. Consequently the standard effort questions were directed to the department heads in order to promote cooperation and prevent embarrassment. Secondly, the percentage of effort reporting in most cases was only requested for one term of activity. It is very awkward to approximate an effort percentage for one activity for a part of the year, since focusing on only one portion of total effort can easily lead to exaggeration, especially when costs are being examined. Both of these problems could have produced some inflated cost estimates.

In order to counteract these problem areas, certain standard procedures were used for estimating comparative course costs. A standard full-time teaching workload of classroom-based contact hours per term was designated for the faculty. The number of contact hours provided per course compared with the designated full-time contact hour load determined the percent of effort for the term. This assumes that a full-time teaching load encompasses all of the faculty member's salaried efforts. Since a term represents only four months of activity, further estimation was necessary for distribution of the remaining yearly workload. For

those faculty persons responsible for teaching a course, five percent of their remaining workload was assumed to be devoted to preparation for that course. For those persons responsible for teaching and coordinating the teaching efforts of other faculty for the course, ten percent of additional workload was assigned. Finally, for those persons responsible for the teaching, plus laboratory direction, fifteen percent of remaining workload was assigned. In all cases, no instructional activity occurred during the one month vacation period, so total yearly salary was assigned to the eleven active months. Through this procedure an estimated percentage of total salary assignable to a course could be obtained using the equation:

$$\frac{(\% \times 4 \text{ months}) + (\% \times 7 \text{ months})}{11 \text{ months}} = \% \text{ of total.}$$

No faculty member carried a full-time teaching-load in more than one term, so this estimating procedure was feasible if not necessarily completely accurate. It should be noted again that the costs developed using this procedure were compared with department head estimates. The faculty instructional cost finally assigned to each course was decided by the Coordinator.

For each course, the total yearly salary was the base for cost distribution despite the sources of funds for the salary. This was because fund sources often changed during the course of the year, and because the course cost should be related to the level of the instructor, rather than the particular individual who happened to teach in 1972-73. In a course where a number of faculty members participated in providing the total instruction, an "average yearly salary" was determined. Each faculty member's yearly salary was multiplied times the number of lecture hours he or she provided in the course. These products were then summed and the total divided by the total number of lecture hours to obtain the average salary.

Estimates of cost for secretarial time and other staff support, plus supplies and equipment expense, were also provided by the department heads. Comparisons for these estimates were provided by calculating what percentage of total budgeted salary the instructional cost for the course represented. This percentage multiplied times the total departmental budget for staff, supplies, and equipment provided a comparative cost. Once again, the Coordinator assigned the final cost estimate for these resources.

The costing rationale and the methods described above were used to develop the direct instructional costs for each of the following courses.

Human Gross Anatomy:

The Department of Anatomy provided three separate courses for the School of Allied Health Professions. The three courses were: Human Gross Anatomy and Neuroanatomy for the Physical Therapy Department, plus Anatomy and Physiology for the Dental Hygiene Department. The costs for each of these courses were developed separately. The department head of the Anatomy Department refused to complete the standard inventory for course cost development. Instead, he submitted an outline of his views on each area of cost. This approach was satisfactory except that in the outline, an instructor's total salary was charged to one course. Because of this, the Coordinator obtained a percentage estimate of the instructor's total

yearly workload devoted to the course during an interview with the instructor. This estimate was necessary to separate the teaching effort (including preparation, presentation, grading, and advising duties) related to the course from effort devoted to departmental research, graduate instruction and advising, or public service.

In 1972-73, 20 students were enrolled in the Human Anatomy course which met nine times a week for fifteen weeks to compile a total of 135 contact hours. The instructor estimated his workload devoted to the course as being full-time for the four months the course was in existence. During the remainder of the work-year, seven months, the instructor estimated that 15% of his total working time was devoted to course revision, acquisition of supplies, preparation of slides, etc., since he served as both instructor and laboratory director. Therefore, an estimated percent of the instructor's total teaching time devoted to this course was calculated as follows:

> 100% for 4 months + 15% for 7 months, with a total sum divided by 11 months to equal 46% of the total yearly salary being a cost for the physical therapy course.

The department head had assigned the instructor's total yearly salary of $14,000 as a direct cost for the course. The Coordinator believes that 46% of $14,000, or $6,440, is a more accurate cost figure.

Supplies needed for the course included six cadavers since there was a ratio of three students per cadaver in the laboratory. The department head quoted the cost per cadaver as being $235 including transportation, embalming fluids, disposition and burial of remains, making a box, opening and closing a grave, and transportation of the box to the burial site. The six cadavers represented a cost of $1,410. The department head estimated a cost of $80 per student for supplies. This included teaching aids, such as slides, video tapes, films, models, etc., hand-out sheets, and secretarial support through typing, mimeographing, and assembling materials. The estimated cost of $80 per student multiplied by 20 students equals $1,600. The department head also included as a course cost the expenses of the faculty member for self-development, research laboratory expense and travel to scientific meetings. The department head estimated the costs for the instructor to be $1,000 per year.

The Coordinator did not agree that a cost of $1,000 for "faculty development" should be added to the course for three reasons. If a charge of $1,000 per faculty member was accurate, $25,000 of the department budget for supplies, expense, and travel would support faculty development. The total university supported supplies and expense budget for the department was $26,813. It is unlikely that more than 5% of that amount would actually support faculty development considering the heavy teaching schedule of the department. Since an estimated 46% of the faculty member's total workload was devoted to the course, no higher percentage of personally incurred "indirect" costs could also be assigned as a course cost. Charges for research laboratory expense, scientific meetings, etc., can be more appropriately and accurately distributed across all of the department's instructional, research, and public service programs. It is difficult to imagine that a large portion of such costs would be assignable to a third-year college level course in basic gross human anatomy. The Coordinator believed that the charge of $80 per student represented sufficient "indirect" departmental expense.

The total estimated cost for this course was therefore $6,440 plus $1,410 plus $1,600 equalling $9,450 of direct instructional expense.

Neuroanatomy:

Fifteen students were enrolled in this course which met three days a week for fifteen weeks producing a total of 45 hours. The 45 hours were provided by three separate professors, each providing fifteen lectures. Since it was assumed above that 135 hours of instruction represented a full-time teaching load for the one term, then the 45 hours would equal one-third of a load. Five percent of the remaining yearly workload was assumed to be applicable to course preparation so that 33% of 4 months + 5% of 7 months with the total divided by 11 months equalled 15.2% of a total full-time teaching load devoted to this course. Averaging of the annual salaries for the three persons involved in teaching the course indicated an annual salary of $19,000 applicable for the teaching. Multiplying this times 15.2% of full-time load devoted to the course gave $2,888 of instructional salary charged to the course. The department head had estimated a salary charge of $3,600 for the course, so a compromise figure of $3,000 was assigned as direct teaching expense. Special supplies needed for this course included preserved brain sections, which at the rate of $10 per student equalled a cost of $150. Handouts for the course, slides, movie preparations, etc., were estimated to be about one-third as many as for the Gross Anatomy course in which the cost rate was $80 per student. The rate here was set at $30 per student for a total of $450. The department head estimated an additional cost for miscellaneous supplies and equipment for this course also. Calculating at the rate of $10 per student brings an additional $150 of cost. The estimated cost for the course was $3,000 plus $150 plus $450 plus $150 totalling $3,750. Adding the cost for the Gross Anatomy course, $9,450, plus the cost for the Neuroanatomy course, $3,750, brings the total estimated direct cost for the two courses taught for the physical therapy students to $13,200.

Anatomy and Physiology:

A basic course was presented to thirty students in the dental hygiene program. This course consisted of 45 hours of lecture presented over a 15 week period. It had one instructor providing 3 hours per week of instruction which was equivalent to one-third of a full-time load for one term. Once again, on a yearly basis, this calculates to 15.2% of total faculty workload. The instructor's salary during 1972-73 was $13,000. This amount multiplied times 15.2% = $1,976, rounded to $2,000. An allotment for handouts, slide preparations, secretary time, telephone, travel, etc., for the course at the pre-estimated rate of $30 per student, multiplied times 30 students, equalled $900. The total estimated direct cost for the course was equivalent to $2,000 plus $900, or $2,900. The total cost for the Anatomy Department for the three allied health courses was then:

$13,200 + $2,900 = $16,100.

Human Physiology:

The Department of Physiology provides one course for the School of Allied Health Professions in conjunction with a course for the School of Nursing. Sixty-two nursing students enrolled in this course together with twenty physical therapy students. The course was constructed so that all students received 75 hours of instruction composed of 2 lectures and 3 lab hours per week for 15 weeks. The physical therapy students received 30 additional hours of instruction entitled, "Special Physiology for Physical Therapy." The 105 total hours of instruction provided for physical therapy equalled an average of 7 hours per week for an instructor. For physiology, a full-time teaching load for a term was considered being 8 hours per week. Therefore, a 7-hour per week teaching load would be 7/8 or 87.5% of a full-time teaching load for 4 months. The instruction in the course was designed to be divided among three professors, however, there were eight professors in all who took part in teaching the course. The average salary of the professors involved in this course was $16,500. Calculating that the professors put in 87.5% of their time for 4 months and an average of approximately 10% of their time for the other 7 months in preparation for this course since technicians and graduate students play a large role in the preparation of materials for the laboratory, the equation used was: $\frac{(87.5 \times 4) + (.10 \times 7)}{11}$ to give an equivalent of 38.2% of a full-time person. Taking that percentage times $16,500, equals $6,300 of faculty salary contribution. This amount was comparable with the department head's estimate. Because of the laboratory portion of the course, it was necessary that five teaching assistants participate in the presentation of course's materials. In total, the teaching assistants provided 76 hours of instruction which was the equivalent of one full-time teaching assistant for the course. The average salary for a teaching assistant in this department was $2,925. Dividing this by two for a half a year's working effort, equals to $1,460 for teaching assistant support. Now besides these estimates for salary, the department head participated in supporting this course in addition to providing instruction. Approximately 2% of the department head's time was estimated as being devoted to the course. Two percent of his time represented a $600 contribution. One professor also had the responsibility for coordinating the course, of making certain that the various professors gave the lectures at the correct time, that the classroom space was available, and that the teaching assistants were there to provide the instruction as needed. It is estimated that an additional ten percent of his total yearly time went into this special effort of overseeing the entire course. His annual salary of $15,500 x 10% = $1,550 for special administrative activities related to the course.

Besides these costs for faculty and teaching assistants, it was estimated by the department head that ten percent of the yearly time of a departmental technician was needed to prepare the laboratory experiments for the students and to assist in the development of special television tapes for showing in the course. Ten percent of $10,000 is equivalent to $1,000 for technician time. Also, the department head estimated that $500 worth of secretarial time was related to the course. This was not based on a rate per student. Similarly, in the case of supplies and related expenses for the course, the department head estimated that on the average $500 per

year was necessary for the replacement of television tapes used in the course. He also estimated $25 for the preparation of slides, that movie rental was $20, and that handouts and other related office supplies were approximately $200 per year, so the total cost for supplies and expense was estimated at $745 per year. Therefore, the total estimated direct cost for the course was for the principal instruction, $6,300; for the teaching assistants contribution, $1,460; for the administrative expense, including the department head, $2,150; for technician assistance, $1,000; for secretarial time, $500; and for supplies and expense, $745. This made the total estimated cost for the course $12,155.

It should be noted that although the course was provided for nurses and physical therapists together the cost for the course would be approximately the same even if it were to be provided strictly for physical therapy students. A cost per student could be assigned for the course and on this basis the Nursing School, with the bulk of the students, would be assigned the bulk of the cost. If 30% of the total cost, $3,645, is assigned solely to physical therapy for the "Special Instruction" portion of the course, and 24% (i.e., 20 ÷ by 82 students) of the remaining balance, $2,042, is also assigned to physical therapy, the allied health total share of the cost would be $5,687. While this estimate may have some validity as the actual cost assignable to allied health for the course during 1972-73, the fact remains that when the course is taught only for allied health, as it will be, the total cost will be $12,000.

Pathology:

The course entitled Pathology was presented solely for the 20 students in the Department of Physical Therapy by the Pathology Department. The course consisted of a total of 45 lecture hours. Faculty participation in the course consisted of 14 different faculty members giving lectures in each of their specialty areas. The cost of the course included a portion of the average yearly salary for all 14 persons, which was $23,300. The total time for the course, 45 hours, was again assumed to represent one-third of the normal expected teaching load for a full-time person for a term. Once again, one-third load x 4 months, plus an assumed 5% of preparation time for the remaining 7 months, divided by 11 gave a total of 15.2% of total faculty teaching time devoted to the course. Taking the average salary of $23,300 x .152 = $3,540 as the direct instructional cost devoted to the course. Besides this cost, the department head of Pathology estimated the other administrative and support costs associated with the course. The department head estimated that during the term he devoted 2% of his working time to assisting in the administration and coordination of the course. Besides this, the course director, who was in charge of coordinating lectures and insuring that the facilities were prepared properly on time, and that appropriate educational objectives were pursued in the course, devoted an additional 10% of his working time for the one term to the course. A technician devoted approximately 10% of his time for the term to the preparation of special slides. The department head estimated also that a 10% allowance would be appropriate for the time used by his department's administrative assistant in directing departmental activities for the course and would include secretarial activities in preparation of slides, handouts, etc. In order to assign these administrative and coordinating costs to the course, the following method was used. It was assumed that the one term of effort was equivalent to 35% of the total yearly workload. Consequently, 35% x the total yearly salary x the amount of working time during the term devoted to the course equalled an assignable cost.

For the department head, this would be for example, 35% x yearly salary x .02 which was equivalent to $280. Following the same method for the coordinator, the cost was $840; for the technician, $470; and for administrative assistants and secretarial help, $330. Adding these administrative and coordinating costs, the total was $1,920. To this was added the average faculty salary cost of $3,540 for a grand total of $5,460 which represented the cost to the Pathology Department for presentation of this course.

The Department of Pathology also contributes support to the program in medical technology. The head of the Department of Pathology has a faculty appointment in the Department of Medical Technology in the School of Allied Health Professions. The head of Pathology is the chief faculty member in charge of maintaining educational objectives with the assistance of the various pathologists who are in charge of the laboratories in the hospitals. The cost attributable to this type of service has been estimated by the head of Pathology to be approximately $3,000 per year. This total cost includes $2,000 in direct salary contribution, $500 for administrative and secretarial support, and $500 for special supplies and equipment. This cost represents a basic science contribution to the internship cost of the Medical Technology program.

Microbiology:

This course was presented to the thirty students enrolled in the dental hygiene program, and it consisted of 3 hours of lecture, plus 3 hours of laboratory per week for one term. The faculty member responsible for the course was salaried by the School of Allied Health Professions, however, 8 lectures were provided by the Department of Microbiology. The basic science contribution to the course cost was estimated to be $300 for instruction, $600 for technician assistance, $350 for secretarial support, and $1,140 for laboratory supplies. These equalled a total contribution of $2,390. When Microbiology assumes the total cost for the instruction, an estimated $3,600 will be added to the total course contribution.

The total direct instructional contributions to the cost of the School of Allied Health Professions' programs by the departments of Basic Sciences during 1972-73 are outlined below in Table VII.

TABLE VII
L.S.U. SCHOOL OF ALLIED HEALTH PROFESSIONS
DIRECT BASIC SCIENCE CONTRIBUTION TO PROGRAM COSTS

Department	Contribution	Program
Anatomy	$ 13,200	Physical Therapy
Anatomy	2,900	Dental Hygiene
Physiology*	5,687	Physical Therapy
Pathology	5,460	Physical Therapy
Pathology	3,000	Medical Technology
Microbiology**	2,390	Dental Hygiene
Total	$ 32,637	

* An estimated $6,468 of this potential program cost has been assigned to the School of Nursing.

** Approximately $3,600 in instructional cost was absorbed by the School of Allied Health Professions.

Medical Clinical Sciences Instruction Costs

The "Clinical Science" departments of the L.S.U. Medical Center are those departments of the Medical and Dental Schools other than the Basic Sciences. The clinical departments of the Medical School provided direct instructional support for the School of Allied Health Professions through four courses. The inventory shown in Appendix 2, which was used in estimating basic science costs, was also used as a reference point for assimilating clinical science costs. However, since no direct charges were assigned to the School of Allied Health Professions for the instruction provided, personal interviews with the instructors were also used in developing these costs. The courses and their cost estimation are described below.

Psychology:

This course was provided by the Department of Psychiatry. It provided 3 lecture hours per week, producing a total of 45 lecture hours over a 15-week term. The course had no lab attached and was conducted for the physical therapy students. It was estimated that approximately 17% of the total yearly workload of the instructor would be assignable to this course. According to the Coordinator's calculations, 15% would have been more accurate; however, 17% was assigned. Multiplying 17% times an annual salary of $19,000 gave an approximate cost of $3,230 assignable for faculty instruction. Other costs associated with the course were estimated by the department head to equal $300. The total direct instructional cost for the course was $3,630. It must be noted that the particular instructor for this course demanded an extra direct payment of $400 from the School of Allied Health Professions. Adding this amount to the previous cost brought the total direct instructional expense to $4,030.

Neurosciences:

This course consisted of 2 hours of lecture and 4 hours of laboratory per week for 15 weeks for a total of 90 hours. The laboratory in this course actually represented time spent in observation of treatment of neurological disorders. The students actually attended treatment sessions at various hospitals and clinics, with a portion of the laboratory period devoted to discussion and review of the demonstrations provided. No special supplies or equipment were necessary for this laboratory. The students supplied their own transportation to and from the demonstration sessions. The demonstrations were all regularly scheduled treatment sessions which were not especially altered in any manner to support the instruction. The major input to the cost for this course was that of the salary distribution of the instructor. It was estimated that approximately 10% of the instructors' total yearly teaching workload was devoted to the course for a cost of $2,670. An additional estimated department cost of $200 for secretarial time, paper, handouts, telephone, slides, etc., brought the total direct cost to $2,870 for the course.

Medical Conditions:

The true title of this course was "Physical Therapy Applied to Medical Conditions." Eleven different instructors took part in this course to provide a

total of 45 hours of lecture. The average salary for the Department of Medicine professors taking part in this course was $27,200. The 45 hours of lecture were regarded as 5% of a normal clinical teaching load. There was no extra cost for coordinating effort, since this task was performed by physical therapy. The supplies for the course, the secretarial expense, etc. were mostly provided by physical therapy. Some secretarial time and some handout materials used in the course were provided by the Department of Medicine, at an estimated cost of $400. The total cost of the course was $27,200 x .05, which is equal to $1,360, plus $400 for support, to equal $1,760.

Orthopedics:

The actual title of this course was "Orthopedics in Relation to Physical Therapy." This was a 45 hour lecture course. However, in this case, only 21 of the course lectures were provided by the Department of Orthopedics. The majority of the instruction was provided by members of the Physical Therapy Department. The 21 lectures provided represented an estimated 3% of total yearly workload for the instructor, who had a part-time appointment. This represented a cost of $400 for the Clinical Sciences. The remainder of course cost, both for instruction and preparation of student material, rested with the Department of Physical Therapy, and has been included as part of the departmental budget expense.

The total contributions to program costs by the "Clinical Science" departments of the School of Medicine are outlined in Table VIII.

TABLE VIII

L.S.U. SCHOOL OF ALLIED HEALTH PROFESSIONS

DIRECT MEDICAL CLINICAL SCIENCE CONTRIBUTIONS TO PROGRAM COST

Department	Cost	Program
Psychiatry	$ 4,030	Physical Therapy
Neurology	2,670	Physical Therapy
Medicine	1,760	Physical Therapy
Orthopedics	400	Physical Therapy
Total	$ 8,860	

Costs Related to Dental Clinical Science Instruction

Since the program costs attributable to the Medical School were termed "clinical science" contributions, the same distinction between "basic" and "clinical" sciences was maintained for the Dental School. The School of Dentistry provided faculty and technicians, as well as physical space in the form of laboratories, clinics and offices for the thirty students enrolled in the programs in Dental Hygiene. Both programs received exactly the same instruction, so costs for each were inseparable. Dentistry contained within its total school budget a special budget for the "Dental Hygiene Clinic" consisting of a total of $34,500 for faculty salaries and $7,000 for supplies and expense. A number of dental faculty members also supported the program through instruction in the professional courses. Each of these instructors was provided with a "Special Inventory for Dental Hygiene Instruction" form to develop an estimated cost for each course. A copy of this form is attached as Appendix 3. These inventories were personally completed by each of the instructors who gave their best estimates on teaching time and the amount of support required for each course. The costs developed from these estimates are outlined below by course.

Oral Diagnosis:

This was a one hour per week lecture course compiling a 15 hour total. Two faculty members participated in this course. One faculty person estimated that 15% of his total average weekly workload was devoted to this course.

One hour of lecture would not ordinarily be equivalent to 15% of an average weekly workload. However, in the School of Dentistry it is possible for a dentist to devote 20% of weekly workload to intramural or extramural practice. This policy helps the School to maintain the necessary number of professional faculty members, but it also reduces the number of hours available for instruction by 20%. For an average forty hour week, total teaching time would be reduced to thirty-two hours. Fifteen percent of 32 hours would equal approximately five hours per week devoted to the one hour course. Considering that this was the first year that the course was taught, some extra time for preparation, counseling, etc., was probably necessary. So, while the estimate of time seemed high, it was accepted for the development of approximate cost; however, no allowance was made for course preparation during other terms. Fifteen percent of average weekly workload for four months divided by 11 working months in the year was equivalent to 5.5% of total yearly workload. This equals a direct instructional cost of $1,045. It was estimated that the secretary devoted approximately 15% of her time per week to the course also at a rate of $440 per month. This estimation represented $230 for secretarial time. The cost for disposable supplies was estimated at $25 per student, or $750. An additional faculty person also participated in the instruction for this course at an estimated salary cost of $430. Combining the four costs brought the total estimated direct instructional expense of the course to $2,455. While this estimate appeared high for a fifteen hour course, it was accepted since it was a direct estimate by the instructors.

Nutrition and Dietetics:

This course was given 2 hours per week in lecture form during fifteen weeks, and the faculty estimated that 20% of their weekly workload was devoted to this course. Figuring on a yearly basis, this calculates to a total of 7.3% of the total working time, equal to a cost of $1,570. The secretary's contribution was estimated at $350 for the course; the technician's time, $150; computer time for the course was estimated at $10 per student or $300; supplies and expense, $10 per student or $300. Besides these estimates, some special pamphlets and books were purchased just for the course, $100; T.V. tape preparation (purchase of the blank tapes in preparation) was considered at $200 and the purchase of movies and slide preparation was estimated at $300. These accumulated to a total of $1,700 + $1,570 = $3,250 for the total cost of the course.

Histology and Embryology:

This was a 3 hour per week lecture course for one term. The faculty person in charge estimated 25% of his teaching time was devoted to this course. On a yearly basis, this equals 9% of annual working time. Multiplying this times the annual salary equals a faculty contribution of $2,500. Secretary time was estimated at approximately 5% for 4 months, which was equivalent to $100 of cost. Office supplies for the course were estimated at $40; manuals and books, $90; and slide preparation and movies expense, $250. These estimates gave a total direct cost for the course of $2,980.

Morphology and Occlusion:

This 4 hour per week clinically oriented course was taught by one of the persons whose salary was included in the Dental Hygiene Clinic budget, so that faculty teaching expense was not included in the calculations here. The cost for instruments for the course was $600; disposable supplies, $50; and permanent supplies, $400. Office expense was estimated at $100, and T.V. tape and slide preparation at $300. The total cost for supplies and expenses for the course, $1,450, was also included in the Dental Hygiene Clinic budget so no additional Dental cost for this course was entailed.

Dental Materials and Assisting:

This course met 4 hours per week and was again clinically oriented. The faculty person in charge of the course estimated that 20% of working time for the term was devoted to the course. This was equivalent to 7.3% of workload effort per year for a contribution of $1,350. Secretarial time estimated at 5% per month represented $100 of cost. A technician was needed in this course at an estimated cost of $550. The personnel expenses for the course were then $1,350 + $100 + $550 = $2,000. Also, it was estimated that for this course disposable supplies were needed at a rate of $60 per student for a total of $1,800. Estimating the cost for paper, slides, movies, and pamphlets at $30 per student brought an additional $900 of cost, making the total estimated direct cost for the course $4,700.

Roentgenology plus Advanced X-Ray and Diagnostic Clinic:

This is actually a continuing course taught during two terms at 6 hours per term. The faculty person in charge estimated that 13% of his weekly working time was involved for each of the two terms. This amount of teaching time for two terms would be equivalent to 11% of yearly total working time being devoted to this course. This represents a salary cost contribution of $2,200. An estimate of $200 per term was allowed for secretarial cost, and $1,000 per term for technician time devoted to assisting in the preparation of the laboratories. Supplies for this course were estimated to be approximately $1,000, and related expenses about $1,000. The total direct instructional cost for the course was therefore estimated to be $2200 for teaching cost + $400 for the secretary + $2,000 for technician time + $2,000 for supplies and expenses = $6,600 total cost.

General and Oral Pathology:

This was a 3 hour course for one term. Estimated teaching time by the faculty person was 15% of total working time for four months which was equivalent to approximately 5.5% of the total yearly workload. This represented a faculty cost of $1,560 which was estimates of $300 for secretary time, $100 for office supplies, $50 for manuals, books and publications, and $100 for movies and supplies, thus making the total direct cost for the course approximately $2,110.

COURSE SUMMARY:

The total direct instructional costs entailed by the School of Dentistry in support of the programs in Dental Hygiene are outlined in Table IX.

TABLE IX
L.S.U. SCHOOL OF ALLIED HEALTH PROFESSIONS
DENTAL CLINICAL SCIENCES CONTRIBUTIONS TO PROGRAM COSTS

Department	Course	Cost
Dental Hygiene Clinic	Dental Hygiene Clinic I and II	$ 41,500
Oral Diagnosis and Radiology	Oral Diagnosis	2,455
Oral Diagnosis and Radiology	Nutrition and Dietetics	3,250
Periodontology	Histology and Embryology	2,980
Dental Hygiene Clinic	Morphology and Occlusion	-0-
Operative Dentistry	Dental Materials and Assisting	4,700
Oral Diagnosis and Radiology	(Roentgenology Clinic) (X-Ray and Diagnosis Clinic)	6,600
Oral Pathology	General and Oral Pathology	2,110
	Total	$ 63,595

All costs in Table IX except for the Dental Hygiene Clinic, represent approximations based on information provided as estimates by the instructors. In general, the estimations of "average weekly workload" devoted to the courses appeared to be high, especially when considered in contrast with the normally high number of teaching contact hours provided by Dental faculty for Dental students, and again when contrasted with the estimates of workload used for the Basic Science and Medical Clinical Science faculty. The estimates were reviewed before acceptance, but they were used as the best estimates available to the Coordinator. Of all direct instructional estimates obtained in this study, these appear to be least accurate. It is possible that the "Special Inventory" was not an appropriate document for use in this situation; further inventories of cost as the programs progress and costs become more established would seem appropriate.

It should be noted again that these costs were estimated for the initial year of operation of the programs. The directors of the Dental Hygiene Clinic estimated that the expendable supply expense for clinic operation one day per week, with each of 30 students attending two patients per week, was $1,000 per term, or $2,000 per year. It was further estimated that during the second year of program operation there would be two classes of 30 students each, with the second year class students attending eight patients per week during three days of clinic work. When this takes place, supply expense is projected to increase to approximately $9,000 per year. Consequently, it is appropriate to estimate that the Dental contribution to the Dental Hygiene program will more than double when the program becomes fully operational.

Review of Direct Instructional Costs Estimation

The direct instructional costs entailed by the Basic Sciences, the Medical Clinical Sciences, and the Dental Clinical Sciences in providing instructional services for the School of Allied Health Professions have been estimated above. These estimations were provided by both department heads and the instructors themselves. Two similar, but differently directed, special inventories for the development of standard cost estimates were employed to counteract existing costing situations. The information obtained was reviewed by the Coordinator, and his rationale for adjusting the estimates to obtain more accurate instructional costs has been explained. While these estimated costs for each area are approximations, and possibly not as accurate as many economists or cost accountants might desire, the costs are more accurate than any previous estimates made at the Medical Center. As a comparison, the method currently employed by the Medical Center administration to determine the service costs may be considered.

Prior to the Fall term, each department head submits a percentage estimate of total departmental effort that may be assigned to other areas as a charge for instructional services to be rendered. Normally these estimates are rounded to the nearest 5%. The Dean or Director to be charged reviews these percentage estimates and has the right to challenge their accuracy. This

challenging never occurs however, because the Dean or Director has absolutely no way of knowing what the total departmental effort will be, rendering the percentages of an "unknown" useless. Consequently, the estimated percentages of departmental effort are accepted and converted to equivalent dollars. The School or area then has this amount of funds charged to its annual budget in order to support the department providing the instructional service.

For example, a review of how this "estimating percentage" method operated during 1972-73 for the School of Allied Health Professions is shown below. The costs estimated by the university system in the Fall of 1972 and the Spring of 1973 are compared with the cost estimates obtained in this report.

TABLE X

L.S.U. SCHOOL OF ALLIED HEALTH PROFESSIONS

COMPARISON OF COST ESTIMATES FOR INSTRUCTIONAL SERVICES

	Instructional Service Costs, 1972-73		
	Coordinator's	University System Estimates	
Department	Estimation	Fall	Spring
Anatomy	$ 16,100	$ 27,660	$ 55,320
Physiology	5,687	8,185	16,370
Pathology	8,460	27,395	27,395
Microbiology	2,390	-0-	13,232
Medicine	1,760	21,936	21,936
Neurology	2,670	5,755	11,509
Psychiatry	3,630	13,100	13,100
Otorhinolaryngology	-0-	-0-	5,000
Orthopedics	400	-0-	-0-
Oral Diagnosis and Radiology	12,305	31,586	42,115
Periodontology	2,980	6,133	6,113
Oral Pathology	2,110	7,700	6,200
Operative Dentistry	4,700	-0-	-0-

It should be noted that the estimates of cost in the university system were supplied by the department heads both before and after the instruction was provided. The "Spring" column in Table X represents a corrected estimate of cost supposedly more accurately based on the actual workload demanded by the course(s) provided. The changes in estimate from Fall to Spring may reflect the addition of a course of instruction, as in the case of Microbiology. Using the university system of estimation, a cost of $13,200 is assigned to the Microbiology course for Dental Hygienists. A review of the instruction, supplies, etc., expense for this course as detailed in this report will obviate the inaccuracies promoted by the university system. In fact, the reader should compare the descriptions of instructional

services required for each course as previously described with the cost estimates provided in the university system. In every case the system estimates appear exaggerated, unless of course the standard departmental instructional workloads are much lighter than assumed.

There may be several reasons why these inaccuracies occur. As shown in Table X, for the departments of Otorhinolaryngology and Operative Dentistry respectively, there are charges where there was no service and service where there were no charges. There are no real safeguards against mistakes in the university system. As mentioned before, there is no method available for checking the accuracy of the percentage estimate. This weakness affects the person estimating as well as the person being charged. Some accurate documentation of projected departmental effort must be available before an assignment of a percentage of total effort may accurately be made. Another reason why inaccuracies occur in this university system is that the system has not been held in serious regard by the medical center administration. Charges indicated by the university system have not always been made, and when they have, such charges have an indirect, rather than a direct, effect on operating budgets.

The irrelevance of how the estimated charges are assigned is reflected in their accuracy. During 1972-73, the School of Allied Health Professions was "charged" $40,997 and $11,509 for the total instructional support of the basic sciences and the medical clinical sciences respectively. No "charge" was indicated for the dental clinical sciences even though such a charge was also indicated in the Fall term estimates shown in Table X. The term "charged" means that the expense was shown in the total budget as a type of indirect cost to the School, much the same as administrative overhead expense. Thus the operating budget of the School was not affected by the estimated charges, and the operating budget of the charging department also remained unaffected. The total budgets of each were affected, of course, but not the funds directly controlled by the dean or department head.

This university budgeting system needs to be revised if accurate instructional service charges are to be developed. As the School of Allied Health Professions continues to expand, its need for instructional service will also expand. Unless total medical center budget funds also expand, the departments providing the service will begin to demand extra financial support through a transfer of operational funds from the School. Such demands for controllable funds will naturally result in disagreements regarding workload and reimbursement. There are methods for possibly resolving this problem which involve the use of an accurate system for measuring workload and better program definition.

The medical center should develop and implement a standard, bi-annual inventory of faculty activity. This activity should be distributed in quantitative terms by department to the identifiable programs of instruction, research, public service and patient care. A review of the information provided in this inventory would permit the establishment of mutually agreeable, minimal expected faculty workloads for each level of instructional activity, as well as for the other basic programs. These minimal workloads might be established for each school or area depending on the long-range objectives of the medical center. However, once these workloads

were defined, either of two methods could be adopted to resolve the problem of instructional service costs: (1) Sufficient funds would be made available in the School of Allied Health Professions' direct operating budget so that the necessary, required instructional services could be purchased through a direct transfer of funds based on the amount of workload service requested. Such a direct transfer of funds would have to be necessary for the service department to function satisfactorily. (2) The direct operational budget of the service department would only be increased when there was a documented demand for increased service. The School of Allied Health would place a well-defined, administration approved request for service to the service department. The service department would use its current workload inventory to document a justification of an increased budget request. The budget request could be supplied or not supplied by the administration, depending on a review of the workload involved. In any case, the instructional service would be provided.

This review of assimilation of the direct instructional costs for the various allied health programs should have provided a better understanding of the problems involved in developing these costs. The accuracy of the estimated costs was also affected by these problems. If more accurate costs are to be determined, a new budgeting approach, preferably a program budgeting system, should be adopted by the Medical Center.

Indirect Cost Determination

All of the instructional costs developed as estimates for the various programs to this point have been termed "direct" costs. "Direct" indicated that the costs were sustained by the operational budget of the department and, as such, the costs were controllable by the department head or dean. Now it is necessary to consider the indirect, or "overhead" costs associated with the programs. These are costs that are sustained by the administrative and operational areas of the university. Since these areas have no direct instructional contribution to the student programs, the area costs must be distributed back to the instructional departments on some legitimate basis in order for all costs to be included in the program cost estimates.

In the Medical Center, the administration has developed a "step-down"* method for allocation of each of the indirect cost areas so that all indirect costs are eventually assigned to four schools, Medicine, Dentistry, Allied Health and Nursing. This method is reviewed below in Table XI.

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*"Step-down" is a term describing a procedure whereby all costs sustained by one unit or area are assigned to all other units or areas that the original unit supports. The same procedure is then used for the next unit or area until finally all costs are concentrated in a few major units.

TABLE XI

L.S.U. SCHOOL OF ALLIED HEALTH PROFESSIONS

STEP-DOWN METHOD FOR ALLOCATION OF MEDICAL CENTER INDIRECT COSTS

Area or Unit of Cost Distributed	Basis for Distribution	Distributed to:
(1) Staff Benefits	Total Salaries	All Areas
(2) Operation and Maintenance	Total Square Feet of Assigned Space	All Remaining Areas
(3) General Administration (Includes: Office of Chancellor, Vice-Chancellor, Comptroller, and Personnel)	Total Budget by Area	All Remaining Areas
(4) General Institutional (Includes: Information Services, Commencement and Diplomas, General Publications, Data Processing, Official Entertainment, Telephone Exchange, and Casualty Insurance)	Total Budget by Area	Four Schools and Basic Sciences
(5) Service Departments (Includes: Animal Care, Computer Center, and Learning Resources)	Service Department Estimate	Four Schools and Basic Sciences
(6) Student Services (Includes: Office of Registrar, Student Health, and Student Financial Aid)	Total Number of Students Registered in Each School During the Year.	Four Schools (Graduate Students assigned to the Medical School)
(7) Library	Library Estimate	Four Schools
(8) Non-Educational Expense and Student Aid	Comptroller's Estimate	Four Schools

Following the method outlined in Table XI, the total indirect costs for operation of each of the areas and units described are distributed to the four schools. The basis for cost distribution in each case is specified, and in general, seems justified. There is some question regarding the use of "square feet of assigned space"

for the distribution of operation and maintenance costs, particularly when comparing the facilities represented by those "square feet." However, this is an accepted procedure for cost allocation, and the Coordinator did make use of the entire step-down method and its 1972-73 distributions. Based on this method, the following indirect cost assignments were calculated: Medical School, $3,196,966; Dental School, $1,364,997; and the School of Allied Health Professions, $137,542.

The weakness of this step-down method should be noted here. There was no indirect cost of operation assigned to the Graduate School or to the Basic Sciences area. During the step-down procedure, costs for the Graduate School were distributed partially to the Medical School and partially to Basic Sciences. There were no practically accurate means available to resurrect and identify these costs. Because of the small number of graduate students involved, this fact should not cause any gross error. In the case of the Basic Sciences, however, the indirect costs appropriately assignable from areas (1) through (5) were identified. These costs were summed to obtain a total of $1,279,350 of indirect expense attributable to the Basic Science area.

It was therefore necessary to reduce the indirect cost assigned to each of the four Schools to allow for the assignment of cost to the Basic Sciences. This was accomplished by multiplying the percentage of total indirect cost assigned to each School times the Basic Science cost, and then subtracting the product from each School's cost. This indirect cost was then added to the total direct budget for each School, and the Basic Sciences, to provide a total cost of operation for each, as shown in Table XII.

TABLE XII

L.S.U. SCHOOL OF ALLIED HEALTH PROFESSIONS

TOTAL BUDGETED OPERATIONAL COSTS BY SCHOOL, 1972-73

School	Direct Cost	+	Indirect Cost	=	Total
Medicine	$ 2,128,127	+	$ 2,380,485	=	$ 4,508,612
Dentistry	2,198,342	+	1,016,374	=	3,214,716
Basic Sciences	2,037,633	+	1,279,350	=	3,316,983
Allied Health Professions	267,976	+	102,398	=	370,374

Through the procedure shown in Table XII, an indirect cost for Medical Center administration was assigned to each School and to the Basic Sciences to obtain a total budgeted cost of operation. Similarly, it was necessary to add the Medical

Center indirect costs to the direct instructional costs previously estimated for each program. To do this, an indirect cost factor was calculated for each School and for the Basic Sciences. The equation for calculating this factor was:

$$\frac{\text{Direct Budgeted Cost + Indirect Cost}}{\text{Direct Budgeted Cost}} = \text{Indirect Cost Factor}$$

The factors obtained using this equation were: Medicine, 2.1185; Dentistry, 1.4623; Allied Health, 1.3821, and Basic Sciences, 1.6278. These factors were then multiplied times the direct instructional costs per course to obtain a total Medical Center operational cost.

For those courses in Medical Clinical Sciences and Dental Clinical Sciences another factor, allowing for inclusion of an indirect cost for School administrative expense, was also used to develop total course costs. The administrative expense for the Basic Science courses was included as Medical Center indirect expense. The school-level administrative expense was included in the course costs before the addition of the Medical Center indirect cost factor. After applying these factors to the direct instructional costs previously determined, the increased costs per department were obtained as shown in Table XIII.

TABLE XIII
L.S.U. SCHOOL OF ALLIED HEALTH PROFESSIONS
APPLICATION OF INDIRECT COST FACTORS TO DEPARTMENTAL ESTIMATES

School/Area	Department	Course	Direct Instructional Cost	Operational Cost
Allied Health:	Physical Therapy	All	$ 83,546	$ 115,470
	Dental Hygiene	All	44,633	61,690
	Medical Technology	All	38,564	53,300
Basic Sciences:	Anatomy	Human Anatomy	9,450	15,380
		Neuroanatomy	3,750	6,100
		Anatomy and Physiology	2,900	4,720
	Physiology	Human Physiology	5,687	9,250
	Pathology	Pathology	8,460	13,770
	Microbiology	Microbiology	2,390	3,890
Medical Sciences:	Psychiatry	Psychology	3,630	8,130
	Neurology	Neurosciences	2,670	5,980
	Medicine	Medical Conditions	1,760	3,940
	Orthopedics	Orthopedics	400	895
Dental Sciences:	Dental Hygiene Clinic	Clinic I and [illegible]	41,500	65,795
	Oral Diagnosis and Radiology	Oral Diagnosis	2,455	3,890
		Nutrition and Dietetics	3,250	5,150
		(Roentgenology Clinic) (X-Ray and Diagnosis Clinic)	6,600	10,460
	Periodontology	Histology and Embryology	2,980	4,725
	Operative Dentistry	Dental Materials and Assisting	4,700	7,450
	Oral Pathology	General and Oral Pathology	2,110	3,345

The "operational costs" shown in Table XIII represent the bulk of the Medical Center's expense in support of the School of Allied Health programs. There are several other areas which contribute to the total costs per degree program, however. Within the Medical Center there should be some capital expense for facilities and permanent equipment utilized by the School of Allied Health Professions. Outside of the Medical Center cost environment, there are the instructional costs developed by the students during their study period on the other campuses to be considered. Also, the internship costs related to the internship portion of the training programs must be added to develop total program costs.

Capital and Equipment Expense

The capital expense associated with the development of the School of Allied Health Professions at the L.S.U. Medical Center has been very small. The great majority of instruction is provided in the medical or dental facilities. The dean's office is actually located in the dental administration building. The basic science laboratories are similarly located in a dental building. Much of the instruction is provided off-campus in various health facilities. The only facilities available strictly for allied health purposes are some temporary buildings constructed by the military during the early 1940's. Since these structures have already outlived their expected useful life, there is no reason to estimate a capital expense for their use. A sufficient operations and maintenance charge for the use of these buildings was assigned as an indirect expense to the School. A consideration of the individual programs was made to outline capital costs associated with the 1972-73 year.

The office for the head of the Medical Technology program is located in the Medical School. The students enrolled in this program are located in the various hospitals serving the internship portion of their education. The department does make special equipment available to the hospitals to help underwrite the hospital's share of the internship costs. It was estimated that approximately $5,000 per year is expended to replace and update technical equipment needed by the students. This expenditure is made from directly budgeted departmental funds each year, and hence is considered equivalent to an equipment capital expense for the department. Rather than attempting to calculate a cost assignable to the program for equipment deterioration each year, the $5000 replacement expense is used as an equivalent value. Therefore, no additional cost for capital expense was assigned to the Medical Technology program for 1972-73.

The programs in Dental Hygiene are located totally in the Dental School. Since 1972-73 represented the first year of operation of the programs, no permanent office or clinic space was assigned to the department. The dental facilities are several very large, modern buildings, and the space allotted to the programs was quite small. There were no practical means available for accurate assignment of a capital expense for space utilization, since the figure obtained would be low and not truly appropriate for the proposed scope of the programs. Instead, some capital expense for the use of special dental equipment was estimated.

The School of Dentistry provided a completely equipped clinic area containing thirty cubicles, or operatories, for student use. There was an original cost of approximately $9,000 per cubicle. A dark room with special equipment valued at approximately $2,000 was also made available. Two special x-ray rooms equipped with dental chairs and x-ray units totalling $5,000 in expense were similarly used by the students. All of this special equipment was necessary for the operation of the hygiene programs, even though the originally planned purpose for the equipment was to support the professional dental program. Assuming that this equipment was necessary for the dental hygiene programs (i.e., that the identical equipment would have been purchased had no dental school existed), an equipment expense may be calculated at the use allowance rate of 6.7% per year*. This would be equal to $18,476 per year of capital cost for use of the special equipment. However, it is certain that a thirty cubicle clinic would not have been furnished just for the dental hygiene programs. The clinic was equipped for the dental students, and it will eventually be used by them as the dental programs expand. So, while it is true that the dental hygienists did make use of the equipment, it was only on the limited basis of each student serving two patients per week during one term. This amount of use is approximately equal to 10% of maximum for four months, or 3.3% of the maximum possible yearly use. The Coordinator therefore estimated that approximately 4% of the total use allowance would be a suitable capital expense for the special dental equipment. This meant that $750 was assigned as a general capital cost to the hygiene programs for use of permanent equipment.

The faculty offices and laboratories for the program in Physical Therapy were located in a military barracks building. As noted above, no capital expense was believed necessary for this type of building. However, during 1972-73 the department received several Federal and State appropriations which supported the renovation and reconstruction of the building plus the purchase of special laboratory equipment. The cost for renovation of the building totalled $22,000 and the special equipment purchase totalled $17,201. An estimated depreciation rate of 10% per year for the building renovations, and a use allowance rate of 6.7%* for the special equipment, would indicate that $2,200 plus $1147 for a capital expense of $3,347 should be charged to the program in Physical Therapy.

It should be noted that the School of Allied Health Professions would not exist if it was not possible for the students to make use of existing facilities. The sharing of classroom and office space by the Medical and Dental schools cannot practically be viewed as an increased cost allocable to Allied Health. The space exists and must be maintained even if the School of Allied Health Professions did not exist. It is only through sharing that new programs may be initiated. Obviously, the programs in Dental Hygiene would never have originated if the dental facilities and equipment were not available. It is true that some portion of capital expense for the use of the physical facilities should be charged to Allied Health but the Coordinator could find no accurate, practical, or meaningful way to do this. While some portion of the depreciation cost of the

*Use allowance rate for equipment established by: U. S. Bureau of the Budget, "Principles for Determining Cost Applicable to Research and Development under Grants and Contracts with Educational Institutions", (Circular A-21, Revised), Washington, D. C., 1965.

special equipment must be assigned to the hygienists, as users of the equipment, it would not be accurate to assign a total use allowance portion of cost to the program since the equipment will also support the dental program. This cost, plus the renovation and equipment expense for the Physical Therapy program, would appear to be the only additional program costs feasible to assign as capital expense.

Pre-Professional Course Costs

In order to calculate a total cost for the provision of allied health programs, it was necessary to also include those costs entailed by agencies outside of the Medical Center which also contributed to the total educational programs. A review was made of those courses which the majority of the students enrolled in each program had successfully completed prior to their entry into the School of Allied Health Professions. The college records for those students who entered the School in the Fall term of 1972 were examined to obtain the most common course outline. Approximately 80% of the entering students had studied on L.S.U. System campuses during all of their pre-professional years, and many of the additional students had also spent some time on L.S.U. campuses. Because of this situation, it was possible to rapidly identify those courses which most students had completed.

Once the courses were identified, it was necessary to attach a cost for the instruction. During 1972, a special Systemwide Cost Study Committee was established to identify the cost of graduating a student from the various programs at each campus. Due to the different accounting procedures in use on each campus, this Committee was unsuccessful in it's total purpose. However, the Baton Rouge campus, in conjunction with the System's Institutional Research Office, did eventually develop a total cost profile for the courses provided on that campus during 1971-72. An average cost per student credit hour was identified for each course. This cost was then increased by a factor equivalent to the indirect costs associated with the operation of the College, and this cost was then expanded by another factor equivalent to the indirect costs associated with the operation of the total Baton Rouge campus.* Therefore, a reasonably accurate total cost per course could be identified for the pre-professional courses completed at Baton Rouge. Since no accurate information regarding course costs at the New Orleans campus could be obtained (despite several inquiries), the Coordinator decided to accept the Baton Rouge course costs as satisfactory examples of the pre-professional course costs in the L.S.U. System.

The typical pattern of pre-professional study completed by the students enrolled in each of the allied health programs was identified and the calculated cost attached, as shown below in Table XIV.

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*All of this cost development work was performed by personnel of the System Institutional Research Office located on the Baton Rouge campus.

TABLE XIV

L.S.U. SCHOOL OF ALLIED HEALTH PROFESSIONS

PRE-PROFESSIONAL COURSE COSTS PER PROGRAM

Course	Cost Per Student Per Program			
	Dental Hygiene A.S.	Dental Hygiene B.S.	Physical Therapy	Medical Technology
English (Composition)	$ 105	$ 105	$ 105	$ 105
English (Drama)		38	38	38
English (Poetry)				43
Chemistry (General)	35	93	93	93
Chemistry (Laboratory)		63	63	63
Chemistry (Quantitative)				92
Chemistry (Organic)			87	245
Biology (General)	32	32	32	
Biology (Lab)	48	48	48	
Zoology (Introductory)				166
Parasitology				419
Microbiology		83		83
Hematology				148
Mycology				15
Immunology				151
Physics (General)		73	73	73
Physics (Laboratory		95	95	95
Algebra and Trigonometry	25	53	53	53
History (Western Civilization)	43	43		
History (American)			22	22
Geography (Human)			9	9
Political Science (Government)		25		
Psychology (Introductory)	5	5	5	5
Sociology (Introductory)	17	17	17	17
Public Speaking	58	58	58	
Total Per Student:	$ 368	$ 831	$ 798	$ 1,935

It must be noted that the total cost per student figures shown in Table XIV are very rough estimates. The cost per credit hour data was an average figure based on 1971-72 fiscal year approximations. The profile of courses per program was typical, rather than precise, for students entolling in the professional programs. The costs were based on Baton Rouge campus information only, and a large proportion of the Medical Technology students transferred from the New Orleans campus. In fact, the Medical Technology pre-professional estimates are the least accurate of the group because of the large number of elective courses completed by the students during their three years of study. The course profiles only represent those courses most commonly pursued by the students.

Once the approximate pre-professional course costs per student were identified, it was possible to multiply the total number of students enrolled in each program during 1972-73 to obtain total pre-professional program costs. These costs are shown in Table XV.

TABLE XV

L.S.U. SCHOOL OF ALLIED HEALTH PROFESSIONS

ESTIMATED PRE-PROFESSIONAL PROGRAM COSTS

Program	Number of Students	Cost Per Student	Total Program Cost
Physical Therapy	35	$ 798	$ 27,930
Medical Technology	64	1,935	123,840
Dental Hygiene (B.S.)	10	831	8,310
Dental Hygiene (A.S.)	20	368	7,360

The "Total Program Costs" shown in Table XV represent the approximate pre-professional instructional costs for the total students enrolled in each program. In the case of Physical Therapy this includes both Junior and Senior students. Naturally these costs will change each year, so it should be noted again that the 1971-72 estimates were assumed to be representative of cost. Further, it should also be noted that these costs represent one to three years of instruction. Care must be taken when combining these costs with the Medical Center and internship costs to obtain a total cost per program.

Internship Costs

Medical Technology:

The senior students enrolled in the Medical Technology program received twelve months (three terms) of educational training while serving an internship in an accredited hospital clinical laboratory. The students received a total of 36 semester hours of credit toward their degree for this educational experience. The development of an estimated, average cost for this hospital-based instruction is described below.

A total of seven of the hospitals which currently participate in the Medical Technology program were visited by the Coordinator and the head of the department. The medical directors and the educational coordinators at each hospital agreed to

assist in the effort to determine the instructional costs associated with their educational program. The persons suggested items which could contribute to the program costs in the hospitals. These items were combined by the Coordinator into a standard inventory of costs which could be used as a standard format by the hospitals for the development of total, comparable costs. This special inventory was titled a "Program Cost Review", and was distributed to the seven hospitals. A copy of this "Review" is attached as Appendix 4.

Ultimately only five of the hospitals completed and returned the "Review". Repeated reminders and special pleas failed to elicit a response from two of the hospitals, so the program cost estimate was based on the information returned by the five hospitals. This information is presented, in a format based on the "Review", in Table XVI below.

TABLE XVI
L.S.U. SCHOOL OF ALLIED HEALTH PROFESSIONS
ESTIMATED INTERNSHIP COSTS FOR MEDICAL TECHNOLOGY

"Review" Section	Cost Estimate Per Hospital				
	1.	2.	3.	4.	5.
(A) Salary	$ 11,200	$ 7,000	$ 22,500	$ 20,836	$ 3,800
(B) Contributed Salary	2,000	660	600	100	-0-
(C) Area Cost:					
Salary	20,763	48,390	52,600	91,460	20,172
Supplies	3,000		9,000	7,326	488
Equipment	6,783		750	2,377	500
(E) General Expense	6,840	2,904	26,010	33,880	3,456
(F) Annual Expense	1,500	2,452	300	4,031	850
(G) Miscellaneous	1,000			3,000	75
Total Expense:	$ 53,086	$ 61,406	$ 111,760	$ 163,010	$ 29,341
Reduction in Expense:	$ -0-	$ 1,452	$ 12,470	$ 38,442	$ -0-
NET* EXPENSE:	$ 53,086	$ 59,954	$ 99,290	$ 124,568	$ 29,341
Number of Students Enrolled:	10	11	17	28	12
Net Cost Per Student:	$ 5,300	$ 5,450	$ 5,840	$ 4,449	$ 2,445

*Not including scholarship or salary payments to students, or fringe benefit costs.

It was agreed that none of the hospitals would be identified in the report on costs, however, it can be said that three of the hospitals were charity operations and two were private. The number of students enrolled in each hospital's program is noted in the Table. These numbers provide some idea as to the size of the hospital and the extent to which the clinical laboratory is used. Both of these factors should have some effect on the total costs reported for the programs.

It can also be seen from Table XVI that there was little comparability in the costs reported by expense category for the various hospitals. It is not known if this reflects differences in the way the educational programs are structured or only the inherent differences in the staffing and operational patterns of the clinical laboratories. Three of the hospitals indicated that the students made a positive contribution to the output of the clinical laboratory, and consequently a decrease in the total program cost for these was noted. The net expense for each hospital was divided by the number of students enrolled to obtain the cost per student. This cost was quite comparable for the first three hospitals, but not the fourth or fifth.

The Coordinator could rationalize the fact that the costs for the fourth hospital were lower than those of the first three because of the fourth hospital's size, mode of operation, and number of students enrolled. The differences in costs reported by the fifth hospital could not be rationalized. The net cost per student of $2,445 was less than half of the cost for the other programs. After reviewing the cost inventory returned by the fifth hospital, the Coordinator decided to delete its information from the study. In the returned "Program Review", the medical director of hospital "5." had included the following comments, "...most estimates are grossly inaccurate. Resulting costs are largely fictitious and unreliable. It is difficult to accept these figures as meaningful."

It should be noted that these were the only criticisms of this nature entered on any of the returned "Reviews"; all other comments were positive. It is unfortunate that this "Cost Review" was completed in such a hasty and skeptical fashion since the Coordinator was always available to assist and to explain.

The total net costs for the first four hospitals were then combined and the total divided by the total number of students enrolled (66) to obtain a figure of $5,100 as the average yearly cost for the internship program in Medical Technology. This is the hospital's average cost. As noted earlier in the report, the Department of Medical Technology also supports this internship portion of the program.

Dental Hygiene:

The students enrolled in the Dental Hygiene program receive their internship training as part of their direct instruction in the Dental Hygiene clinic courses. All costs associated with this instruction have already been included in this report.

Physical Therapy:

The Physical Therapy program was just beginning its internship program in the Summer of 1973 as the contract cost estimations were being concluded. Therefore it was not possible to obtain any direct cost information or cost estimates from the facilities providing the internships for the physical therapy students. However, the internship coordinator for the Department of Physical Therapy did provide the following information on costs.

The students are assigned in pairs to 18 participating facilities for a total of 720 clock hours of instruction. The department head, or a designated professional staff member in each facility, is responsible for: (1) Orientation of the students to the Physical Therapy Department and the institution, (2) Coordination and supervision of student activities in the departmental clinic, (3) Evaluation of student performance, and (4) Consultation with the coordinator of clinical education from the Physical Therapy Department of the Medical Center. It was estimated that approximately 25% of the clinical instructor's working-time is devoted to these responsibilities for each clock hour that a pair of students are interning. It was then calculated that 25% of the 720 clock hours per pair of interns was equal to 180 hours of instructor time. It was assumed that the average instructor works 1960 hours per year for an annual salary of $14,000. The 180 hours would represent 9.2% of the annual workload, or $1,285 of annual salary. This would be the estimated annual salary cost per pair of internists. During 1973 there were 15 students serving internships, so the total estimated cost was approximately $9,640.

There were no means available for determining the costs for special supplies, equipment, books, etc., necessary for the students to serve their internship. It was assumed that the students would work with patients who were normally scheduled for treatment, so that the supplies and equipment utilized would be the same regardless of student participation.

A more definitive, standard survey of the various intern facilities would be necessary if a more accurate estimate of cost was to be obtained. Such a survey was not possible, and the approximate figure of $9,640 was accepted as the total internship cost.

Calculation of Total Program Costs

All of the costs that could be determined to be related to the educational programs of the School of Allied Health Professions have been developed and documented in this Section. These costs were developed both internally and externally to the Medical Center, following the same pattern of existence as the allied health programs. Now the costs must be combined in appropriate fashion to provide a profile of program costs for the School of Allied Health Professions for 1972-73.

In order to properly develop program costs it is necessary to consider the total cost information available. The total costs per department as directly

budgeted within the School of Allied Health Professions were outlined in Table VI. The costs entailed by the Basic Science Departments in providing instruction and assistance for the various programs were shown in Table VII. The Medical Clinical Sciences contribution to the Physical Therapy program, and the Dental Clinical Sciences contribution to the Dental Hygiene program were shown in Table VIII and IX, respectively. Finally, the total direct instructional costs per course were shown in Table XIII. These direct instructional costs totalled $271,435 for all programs combined. When the indirect costs for Medical Center overhead expense were included, the total "operational", or Medical Center, cost for all programs totalled $403,330. A capital expense estimation of $4,097 was made for renovations and equipment use in the programs. Addition of this expense brought the total Medical Center cost for the instructional programs to $407,427. It should be noted that the department of Audiology and Speech Pathology represented a further, non-instructional, allied health expense within the Medical Center. An operational cost of $135,572 was assignable to this department. Inclusion of this expense brings the Medical Center cost for the School of Allied Health Profession's instructional and non-instructional programs to a total of $542,999 for 1972-73.

The costs for each instructional program were developed by combining the course cost information of Table XIII with the program contributions of the Basic Science Departments shown in Table VII. The courses and the total operational cost, i.e., direct plus indirect cost, that each contributed to the various programs are outlined in Table XVII.

TABLE XVII

L.S.U. SCHOOL OF ALLIED HEALTH PROFESSIONS
ASSIGNMENT OF COURSE OPERATIONAL COSTS TO PROGRAMS

Program	Course	Operational Cost
Physical Therapy	Human Anatomy	$ 15,380
	Neuroanatomy	6,100
	Physiology	9,250
	Pathology	8,887
	TOTAL COST	$ 39,617
Medical Technology	Pathology	$ 4,883
	TOTAL COST	$ 4,883
Dental Hygiene	Anatomy and Physiology	$ 4,720
	Microbiology	3,890
	TOTAL COST	$ 8,610

The operational costs per program shown in Table XVII could then be combined with the other Medical Center expenses to obtain a total cost per instructional program. This procedure is shown in Table XVIII.

TABLE XVIII

L.S.U. SCHOOL OF ALLIED HEALTH PROFESSIONS

TOTAL MEDICAL CENTER COSTS PER INSTRUCTIONAL PROGRAM

Expense	Cost Per Program		
	Physical Therapy	Medical Technology	Dental Hygiene
Department Operational Budget:			
Table XIII	$ 115,470	$ 53,300	$ 61,690
Operational Cost Per Course:			
Table XVII	39,617	4,883	8,610
Tables VIII and XIII	18,945		
Tables IX and XIII			100,815
Capital Expense:	3,347		750
TOTAL	$ 177,379	$ 58,183	$ 171,865

There are some points to be noted when considering these program costs. The costs for the Physical Therapy program are for 20 junior and 15 senior students. As the program increases to 20 students per each class in 1973-74, the costs as indicated here should not increase significantly. The Medical Technology program costs are not closely related to the number of students enrolled in the program, since the students receive their instruction at facilities outside the Medical Center. While these costs will increase as program enrollment grows, the cost will reflect coordination rather than instructional effort, and therefore the increase should not be substantial. The costs for the Dental Hygiene program represent only one year of instruction for students enrolled in both the associate and baccalaureate degree plans. There is no difference in the instruction provided to the students in the two plans, so the cost has been considered as a single program cost. As the second class of 30 students enters this program, and as the second year of instruction is provided, the total Medical Center costs for this program will probably double.

It is unfortunate, therefore, that the program costs represent three different situations. An average cost per student for the program would have little meaning, since the costs really are not that closely related to student numbers,

nor are the programs comparable. Essentially, the program costs shown in Table XVIII represent the best estimates of Medical Center costs associated with the operation of these programs in the School of Allied Health Professions during 1972-73.

An attempt may be made to approximate the existing costs for operating these programs if the expenses sustained by agencies outside the Medical Center are considered. The pre-professional costs per student were estimated in Table XIV. These costs multiplied times the number of students enrolled in each program provided a total pre-professional cost per program as shown in Table XV. The average internship cost per medical technology student, as sustained by the hospital, was approximately $5,100. This value multiplied times the number of senior students serving internships (64) provided a total program internship cost of $326,400 for 1972-73. Similarly, a total internship cost to be sustained by the health facilities providing physical therapy training was estimated at $9,640 for 1972-73. If tnese costs are combined with the Medical Center costs, a profile of the expenses associated with the operation of the programs is obtained, as shown in Table XIX.

TABLE XIX

L.S.U. SCHOOL OF ALLIED HEALTH PROFESSIONS

A PROFILE OF PROGRAM COSTS

	Cost Per Program		
	Dental Hygiene	Physical	Medical
Cost Source	(A.S. B.S.)	Therapy	Technology
Pre-Professional Costs	($ 7,360 $ 8,310)	$ 27,930	$ 123,840
Medical Center Costs	($ 171,865)	177,379	58,183
Internship Costs		9,640	326,400
TOTAL	($ 187,535)	$ 214,949	$ 508,423

This Table is titled "A Profile of Program Costs" because the total program costs really represent three different situations. It should be remembered that the pre-professional costs were incurred over a one, two, or three year period, while the Medical Center and internship costs are appximations for fiscal year 1972-73 only.

The total program cost for the Medical Technology program represents an approximation of the total costs entailed by the 64 students during their entire period of study. The pre-professional costs represent the three years of college

preparation, and the Medical Center and internship costs represent the senior year. When the total cost is divided by the number of graduates, an approximate total cost of $7,944 per graduate is obtained.

The total cost for the Dental Hygiene program represents the total costs entailed to this point directly by the 30 students. When this total cost is divided by the number of students, a cost of $6,251 per student is obtained. This cost does not contain any allowance for Medical Center expenses for the Hygiene program incurred prior to 1972-73. The cost also should not be construed as representing the cost for the total degree program, since the students need another year of study to earn degrees.

The program cost for Physical Therapy is more complex since both junior and senior students were enrolled in the program during 1972-73. The pre-professional costs are for both groups of students, but the internship costs are estimated only for the seniors. No Medical Center expenses incurred prior to 1972-73 are included in the total cost estimate. An approximate cost per graduate may be developed, however, if it is assumed that the current Medical Center cost ($177,379) is representative of the junior and senior year costs entailed by the graduates. If the pre-professional costs are reduced by the amount assignable to the 20 juniors ($15,960), then a total program cost approximation for the 15 graduates would be $198,989. This amount is equivalent to $13,266 per Physical Therapy graduate.

SECTION III

CURRICULUM, COSTS, AND PLANNING

Background Information

In an effort to provide some practical examples of how the program-planning philosophy presented in Section I could eventually be converted to practical purposes in the School of Allied Health Professions, the Coordinator obtained and implemented the Cost Estimation Model*(C.E.M.). The C.E.M. is a computer-based modeling system designed especially for college and university administrators' use in applying cost simulation techniques. The model permits the user to manipulate actual data in order to project instructional and non-instructional costs for an institution.

This cost-simulation work has been included as a separate section in this report to emphasize the belief that neither curriculum planning nor costing have much meaningful value if they are done in isolation. Long-range planning, redefinition of objectives, and consideration of goals are all worthwhile endeavors of academic and financial administrators. However, these same endeavors are all subject to the cost limitations imposed by real circumstances. New academic programs may be initiated in schools of the allied health professions for many good reasons, but if these programs cannot receive adequate financial support, they will be failures to themselves, their school, and their students. Further, if new programs cannot contribute to the overall unity of school purpose, which involves the commitment of capital resources, then they can effectively impede total progress and possibly foment the dissention that is easily aroused between professions.

The C.E.M. was therefore utilized to project the financial consequences of the program-planning and curriculum sharing goals that were developed through the impetus of this Contract. It was hoped that such a projection would indicate that the emerging School of Allied Health Professions was concentrating its financial as well as academic resources.

Projecting Program Costs

The input data used for operation of the C.E.M. were partially obtained from the information provided in the discussion of "Program Sharing of Third Year Courses" on page 18 of this report. The list of courses proposed for sharing among programs, Table V on page 19, was also utilized to structure the cost estimations. The C.E.M. requires certain other standard information for proper

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*The Cost Estimation Model (C.E.M.) system was developed at the National Center for Higher Education Management Systems (NCHEMS) at WICHE (the Western Interstate Commission for Higher Education), Post Office Drawer "P", Boulder, Colorado 80302.

operation. An induced course-load matrix, or diagram of course contact hours shared between programs, was required for each program. A projection of the student enrollment in each program was also needed. The projections used for each program are shown below in Table XX.

TABLE XX

L.S.U. SCHOOL OF ALLIED HEALTH PROFESSIONS

STUDENT ENROLLMENT PROJECTIONS USED FOR THE C.E.M.

Program	Number of Students Enrolled				
	1972	1973	1974	1975	1976
Physical Therapy	35	40	40	40	40
Dental Hygiene	30	60	65	70	75
Occupational Therapy	-0-	15	35	40	40

As indicated in Table XX the C.E.M. could be utilized for five years of cost simulation. By using 1972 as the intial year, it was possible to project program costs four years into the future. It should also be noted from Table XX that the program in Medical Technology could not be included in the projections since the instruction in that program was not provided in the Medical Center. The C.E.M. also required the costs information developed in Section II as input data for faculty workloads, average salaries by area, and indirect costs. The data obtained in Section II was used as the standard base information for the two model programs, Physical Therapy and Dental Hygiene, actually operating in 1972.

In order to project the program cost implications for the course sharing proposed in Section I, it was first necessary to project the program costs that would develop if no course sharing was to occur. For 1972, the input data to the C.E.M. were structured so that the program costs for that year were developed in a manner as similar to the Section II costs as was possible. The next four years of program costs for the Physical Therapy and Dental Hygiene programs were then developed on the 1972 base. For 1973, input data were estimated for the new program in Occupational Therapy, since the curriculum plan for that program had been approved. All of the courses necessary for the junior year of the program were treated as new, non-shared courses. In projecting costs for 1974, the new senior-level courses in Occupational Therapy were treated in the same fashion. It was not possible to project program costs for Rehabilitation Science, since no curriculum plan for that program had been developed.

The C.E.M. projected program costs for the tot l Medical Center using much the same procedure as Section II. Costs for each program within the School of Allied Health Professions' budget were projected individually; then the "service"

costs for the Basic Sciences, the Clinical Medical Sciences, and the Clinical Dental Sciences were each projected. Finally the indirect Medical Center costs resulting from all of these programs and "service" costs were also projected. These projected costs were all combined to give a total Medical Center cost for each year.

The projected cost implications of operating the various programs separately, with no sharing of courses, is shown below.

TABLE XXI
L.S.U. SCHOOL OF ALLIED HEALTH PROFESSIONS
PROJECTED PROGRAM COSTS -- ALL PROGRAMS TREATED SEPARATELY

Area of Cost	Projected Cost Per Year				
	1972	1973	1974	1975	1976
Physical Therapy	$ 88,643	$ 95,194	$ 100,477	$ 104,466	$ 108,655
Dental Hygiene	44,633	106,296	119,385	131,680	144,940
Occupational Therapy	-0-	87,629	174,116	199,498	226,993
Basic Sciences	32,637	57,294	66,226	71,379	75,683
Medical Clinical Sciences	9,366	16,811	18,873	20,892	23,067
Dental Clinical Sciences	68,943	164,730	182,488	200,737	219,987
Medical Center Indirect	126,041	181,436	206,837	215,731	224,532
Total Cost	$ 370,263	$ 709,390	$ 868,402	$ 944,383	$1,023,587

It should be noted that the costs indicated in Table XXI for all years beyond 1972 were developed on the basis of a number of estimations and therefore cannot be regarded as more than approximations. The large increases in cost indicated for the Dental Hygiene and Dental Sciences areas in 1973 are a result of the doubling of student enrollment, plus the fact that the senior students will be participating almost completely in dental course. The large increase in Basic Science costs in 1973 are a result of beginning the program in Occpuational Therapy.

The next projections were based on the assumption that the programs in Physical Therapy and Occupational Therapy could share certain courses. The other program,

Dental Hygiene, was maintained separately. Since the Occupational Therapy program was projected to start in 1973 with a junior class enrollment of 15, a number of courses could be shared with Physical Therapy during that year. It was projected that the Basic Science courses of Human Anatomy (5 cr.), Human Physiology (4 cr.), Pathology (3 cr.), and Neuroanatomy (3 cr.) be shared. Similarly, the Physical Therapy courses of Functional Anatomy (4 cr.), Tests and Measurements (3 cr.), and Correlative Conference (1 cr.), plus the Medical Clinical Sciences courses of Medical Conditions (3 cr.), Orthopedics (3 cr.), and Clinical Psychiatry (3 cr.) were projected as all being shared by students enrolled in the two programs. For 1974, the Occupational Therapy seniors were projected to share a course in Neurosciences (3 cr.) with the physical therapists. While it is possible that at least some of the Physical Therapy students would share the Occupational Therapy courses of Human Development (3 cr.) and Psychosocial Dysfunction (4 cr.) during 1974, this situation was not projected since such sharing has not yet been approved by the department heads. The effects on program costs resulting from the sharing of courses by students enrolled in the two programs are shown in Table XXII.

TABLE XXII
L.S.U. SCHOOL OF ALLIED HEALTH PROFESSIONS

PROJECTED PROGRAM COSTS
OCCUPATIONAL THERAPY AND PHYSICAL THERAPY SHARING

Area of Cost	Projected Cost Per Year			
	1973	1974	1975	1976
Physical Therapy	$ 90,026	$ 97,462	$ 102,598	$ 108,056
Dental Hygiene	106,296	119,385	131,680	144,940
Occupational Therapy	76,553	162,023	165,103	186,444
Basic Sciences	39,690	45,485	48,837	51,630
Medical Clinical Sciences	10,122	12,389	13,571	14,843
Dental Clinical Sciences	164,730	182,488	200,737	219,987
Medical Center Indirect	161,024	184,050	191,396	199,241
Total Cost	$ 648,441	$ 803,282	$ 853,922	$ 925,141

It should be noted that the costs indicated in Table XXII were developed on the basis of a number of estimations and therefore cannot be regarded as more than approximations. These costs should be compared with the costs shown in Table XXI. The sharing of Basic Science courses resulted in a projected savings of $17,604. The sharing of Medical Clinical Sciences instruction resulted in a projected $6,700 of savings. Through the sharing of courses between the

programs, it is possible to project the elimination and consolidation of departmental courses. This situation explains the projected decrease in Occupational Therapy costs of $11,000. By 1974, when the enrollment in the Occupational Therapy program has increased, it is projected that a cost decrease of $20,700 will be possible for the Basic Sciences. As the program costs decrease, so shall the Medical Center Indirect costs attached. In total, program cost decreases of $93,900 in 1973, $65,120 in 1974, and eventually $98,446 in 1976, will be realized through this sharing.

Another projection of total program costs was made including the Dental Hygiene program in sharing of courses with Physical Therapy and Occupational Therapy. It was estimated that by 1974, when the total Dental Hygiene program is established, it will be possible for students in that program to share the Correlative Conference course (1 cr.), the Tests and Measurements course (3 cr.), and the course in Medical Conditions (3 cr.), with the students enrolled in Physical Therapy and Occupational Therapy. Through the sharing of these courses it will be possible to eliminate a portion of the instruction provided by the Dental Hygiene Department and the Dental School. The projected program costs are shown in Table XXIII.

TABLE XXIII
L.S.U. SCHOOL OF ALLIED HEALTH PROFESSIONS

PROJECTED PROGRAM COSTS
OCCUPATIONAL THERAPY, PHYSICAL THERAPY, AND DENTAL HYGIENE SHARING

Area of Cost	Projected Cost Per Year		
	1974	1975	1976
Physical Therapy	$ 98,830	$ 104,494	$ 110,512
Dental Hygiene	109,090	118,374	128,388
Occupational Therapy	162,023	165,103	186,444
Basic Sciences	45,485	48,837	51,630
Medical Clinical Sciences	12,043	13,194	14,795
Dental Clinical Sciences	171,912	189,052	207,125
Medical Center Indirect	183,180	190,471	198,262
Total Cost	$ 782,563	$ 829,525	$ 896,886

It should once again be noted that the cost figures generated by the C.E.M. are only approximations. In comparing Table XXIII with Table XXII, it can be seen that the sharing of courses has decreased the Dental Hygiene and Dental

Clinical Science expenses as expected. These both are projected as very expensive areas of instruction, and even the small amount of course sharing projected results in a sizeable cost change.

Although it was proposed in Table V that the programs in Rehabilitation Science and Medical Technology would eventually participate in the sharing of courses, the curricula for these new programs have not been sufficiently resolved to permit program cost projections with the C.E.M. However, from the information presented in the last two tables, it should be evident that program cost reductions are possible through the sharing of courses, at least when the sharing permits the elimination of other instruction. The reduction in total program costs possible through course sharing as projected using the C.E.M. is shown in Table XXIV.

TABLE XXIV

L.S.U. SCHOOL OF ALLIED HEALTH PROFESSIONS

PROJECTED REDUCTIONS IN TOTAL PROGRAM COSTS THROUGH SHARING

Situation	Total Program Costs			
	1973	1974	1975	1976
All Courses Separate	$ 709,390	$ 868,402	$ 944,383	$ 1,023,587
All Programs Sharing	648,441	782,563	829,525	896,886
Total Decrease	$ 60,949	$ 85,839	$ 114,858	$ 126,701

Table XXIV indicates that it would be possible to decrease total program costs by approximately $388,000 over the four years projected. These projections are only approximations of cost based on a long series of assumptions and estimates, but the total amount of cost savings potentially involved indicates the value of planning new curricula to promote financial as well as instructional objectives.

APPENDIX 1

APPENDIX 1

COURSE DESCRIPTIONS

PROFESSIONAL COURSES PROPOSED FOR SHARING

Human Anatomy:

Three hours of lecture and 6 hours of lab each week. Lectures on cell, tissue, organ and body systems structure, and dissection of human cadaver with emphasis on structure and function of neuromuscular and skeletal systems.

Human Physiology:

Three hours of lecture and 4 hours of lab-demonstration each week. Lectures cover physiology of cell, tissue, organ and body systems with emphasis on physiological changes associated with selected pathological conditions. Laboratory-demonstrations focus on observation and measurement of function in the body systems using video tapes and animal experiments.

Neuroanatomy:

Three hours of lecture each week. A study of anatomy of the central and peripheral nervous systems with emphasis on structures commonly involved in pathological conditions resulting in paralysis, incoordination and loss of function.

Pathology:

Three hours of lecture each week. A study of pathological processes basic to inflammation, infection, neoplasia, genetic and metabolic diseases, and a review of selected diseases of each major organ system.

Functional Anatomy:

Two hours of lecture and 2 hours of lab each week. A study of biomechanics, anatomy and physiology in relation to normal body movement and review of pathological conditions affecting the neuromuscular and skeletal systems.

Clinical Psychiatry:

Three hours of lecture each week. To introduce concepts of etiology, symptomatology, prognosis and medical treatment of psychiatric disorders as they relate to the professional practice of the graduates.

Medical Conditions:

Three hours of lecture each week. Lectures by specialists in Rheumatology, Communicable and Infectious Disease, Internal Medicine and other specialty areas focus on etiology, medical management and role of the professional in evaluation and patient care.

Appendix 1
Course Descriptions
Professional Courses Proposed for Sharing

Tests and Measurements:

Three hours of lecture each week. A study of scientific methodology and the use of statistics in the design and analysis of clinical investigations. Consideration is given to fundamentals of sample selection, measures of central tendency, measures of variation, tests of significance and correlation coefficients.

Orthopedics:

Three hours of lecture each week. Lectures by physicians representing orthopedic and surgical specialties with emphasis on etiology, management and the role of the professional in evaluating and treating patients pre-operatively, postoperatively and long term care.

Human Development:

Three hours lecture and clerkship per week. This course encompasses the developmental process from birth to senescence. The adaptive skills of the growing individual--physical, cognitive, and emotional are considered in relationship to the social and cultural environment which simultaneously foster and shape his development.

Psychosocial Dysfunction:

Two hours lecture, 2 hours lab, 3 hours clerkship. Examination of major psychiatric concepts in the allied health fields with reference to evaluation techniques, treatment planning, and analysis of activities. Exploration of current trends in psychiatry: community program, family therapy, industrial therapy and group therapy.

Correlative Conference:

One hour lecture. A general introduction to the history of the allied health professions, professional organization and codes of ethics. Legal aspects of practice and medical writing will be included.

Neurosciences:

Two hours of lecture and four hours of lab each week. The study of normal and abnormal nervous system findings correlated with patient presentation relating to the structure and functions of the nervous system.

APPENDIX 2

LOUISIANA STATE UNIVERSITY MEDICAL CENTER

SPECIAL INVENTORY FOR PHYSICAL THERAPY INSTRUCTION

(PROGRAM ANALYSIS FOR 1971-72)

Date_____

Department_____ Dept. Chairman_____ Acct.#_____

Course No._____ Title_____ Semester_____

Total classroom _____ hours, plus total laboratory _____ hours provided.

No. of Physical Therapy students ____ enrolled. Total No. of students ____ enrolled.

Course No._____ Title_____ Semester_____

Total Classroom _____ hours, plus total laboratory _____ hours provided.

No. of Physical Therapy students ____ enrolled. Total No. of students ____ enrolled.

NOTE: The following information is requested only in terms of careful estimates regarding the course(s) in which physical therapy students participated.

SECTION I: FACULTY SALARY COST

For each faculty member who participated in the design, coordination, or instruction of the course(s), estimate what percentage of that person's annual expected teaching (not research) workload the course effort represented. Multiply this percentage times the person's annual teaching salary to obtain a dollar cost attributable to the course(s).

Faculty Member	* Duty	Percentage	Dollar Cost
(Chairman)		%	$
(Coordinator)			
(Others)			
		TOTAL	$

* Duties may include administering, preparing, lecturing, advising, demonstrating, coordinating, or otherwise assisting in the delivery of the course.

SECTION II: NON-FACULTY SALARY COST

For each category of non-faculty personnel, estimate what percentage of annual expected workload (excluding research budgeted work) course duties represented. Multiply this percentage times the annual "instructional" salary to obtain a cost.

Personnel	Number	Average Percentage	Dollar Cost
Technicians, or		%	$
Laboratory Assistants			
Secretaries			
Graduate Assistants			
Other			
TOTAL			$

SECTION III: SUPPLIES AND EXPENSE (As used in these courses only.)

Supplies	Expense	
Reagents	$_____	
Instruments	_____	
Special Supplies (e.g. Cadavers, etc.)	_____	
Television Tapes and Preparation	_____	(Average Annual Cost)
Slides and Preparation	_____	(Average Annual Cost)
Movies	_____	(Rental)
Office Supplies	_____	(Paper, Duplicating, etc.)
Manuals, Books	_____	(Include Duplication)
Other Related Expense	_____	(Please describe)
TOTAL	$_____	

SECTION IV: TOTAL ESTIMATED COST

Section I + Section II + Section III = TOTAL $_____.

APPENDIX 3

LOUISIANA STATE UNIVERSITY MEDICAL CENTER

SPECIAL INVENTORY FOR DENTAL HYGIENE INSTRUCTION

(Program Analysis for 1972-73)

Instructor: _____ Department: _____

1. Course Title _____: Fall _____ OR Spring _____ Term

2. Course Title _____: Fall _____ OR Spring _____ Term

SECTION I: FACULTY

(Please estimate separately for each course.)

The percentage of your "average weekly workload" devoted to the course(s):

Course 1. _____% Course 2. _____%

"Average weekly workload" includes all of those teaching, research, administrative, public service, and patient care activities that you are expected to perform in return for your University funded salary during a typical week. Time devoted to lecturing, preparing, advising, grading, demonstrating, or otherwise assisting in the delivery of the course should all be included in your estimate.

SECTION II: SUPPORT PERSONNEL

For each category of support personnel below, please estimate the average number of hours per week, if any, devoted to supporting your instructional activities for each course.

Secretary	Course 1. _____Hrs.	Course 2. _____Hrs.
Technicians	_____Hrs.	_____Hrs.
Graduate Assistants	_____Hrs.	_____Hrs.
Others _____	_____Hrs.	_____Hrs.

SECTION III: SUPPLIES AND EXPENSES

Please estimate for each course, particularly laboratory courses, the average Term expense incurred by the School for each of the items indicated.

Item	Expense		
Instruments	$_____per course	OR	$_____per student
Disposable Supplies	$_____per course	OR	$_____per student
Special Supplies (Permanent) Purchased only for Dental Hygiene students use.	$_____per course	OR	$_____per student

SECTION III: SUPPLIES AND EXPENSES (Continued)

Item	Expense
Medication, Reagents, etc.	$_____per course OR $_____per student
Other Related Expense	$_____per course OR $_____per student
Office Supplies	$_____ (Paper, Duplication, etc.)
Manuals, Books	$_____
Television Tapes and Preparation	$_____
Movies, Slides	$_____

Thank you for your assistance in gathering these estimated costs associated with instruction for the Dental Hygiene students. If you believe this cost inventory to be seriously inappropriate in its wording or design, or if important cost factors have been overlooked, please comment below:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

APPENDIX 4

CLINICAL TRAINING PROGRAM FOR MEDICAL TECHNOLOGISTS

PROGRAM COST REVIEW

Review of the program at _____ Hospital. Date:_____

Number of students trained per year _____.

Pathologist(s) _____ _____

Educational Coordinator _____

SECTION I: SALARY AND RELATED COST BY AREA

(A) Estimation of Teaching and Administrative Salary Costs:

The laboratory pathologist(s) and the educational coordinator devote some portion of their working time to the clinical training program whether it be directly in lecturing, instructing, and counseling, or indirectly in program administration and coordination. Estimate the percentage of each of these person's annual clinical workload devoted to the above described duties. Multiply these percentages times the annual clinical salaries to obtain an estimated dollar cost for the services. Sum to obtain a total cost:

Salary contribution from Pathologist(s) $_____.

Salary contribution from Educational Coordinator _____.

Total $_____

(B) Estimation of Contributed Salary Costs:

In some training programs, visiting or "guest" instructors may provide lectures, seminars, etc. for the students with no charge or recompense. If these "free" services are regarded as a necessary part of the training program, they should be included as a program cost. Estimate what the cost of these services would be if they were provided by the equivalently qualified program personnel, i.e., pathologist, educational coordinator, or staff:

Estimated annual cost for contributed services $_____.

(C) Estimation of Program Cost by Laboratory Area:

For each area of the clinical laboratory that provides specialized instruction for the students estimate the following costs.

(1) Salary Cost - Estimate the percentage of annual workload that each laboratory employee devotes to the instruction of technology students. Multiply this percentage times the employee's annual salary to obtain the estimated salary dollar cost for the training. Sum the costs for all employees to obtain a total cost for each area.

(2) Supplies Cost - Estimate for each area the average annual cost for extra laboratory supplies, including reagents and other chemicals, that are required only because of the training program.

(3) Equipment Cost - Estimate for each area the average annual purchase, repair, and/or maintainence of equipment cost entailed only because of the training program.

Laboratory Area	Average Percent Of Time	Salary	Supplies	Equipment	Total
Bacteriology	%	$	$	$	$
Blood Bank					
Chemistry					
Hematology					
Histology					
Mycology					
Nuclear Medicine					
Parasitology					
Serology					
Special Chemistry					
Urinalysis					
Total	%	$	$	$	$

(D) If possible, estimate the fringe benefit rate as a percentage of base annual salary for each level of personnel:

Note: This (D) Section is optional for completion. In many hospitals the fringe benefit rate is not defined.

Fringe Benefit Rate:

Pathologist _____% Educational Coordinator _____% Staff _____%

These percentages multiplied times the total salary dollars contributed by each personnel class (in A, B and C) defines another program cost; however, percentages only are welcome.

Sum the products for all employees. $_____ Fringe Dollars

SECTION II: GENERAL PROGRAM COSTS

(E) General Program Expense - Per Month:

Note: Calculate these monthly expenses either per student or as a total, whichever is more accurate.

	Per Month	
Expense	Per Student	Total
Stipend or Salary	$	$
Food		
Room		
Uniform		
Laundry		
Misc. Study Materials		
Other (Specify)		
Total	$	$

(F) General Program Expense - Annual:

(Estimate the average annual expenditure for each of the following cost areas.)

Cost Area	Average Annual Expense
Library - Purchase of books, journals, or periodicals especially for student use.	$_____
Continuing Education - Travel, visits, lectures, materials, etc., necessary for instructors to maintain and/or improve training skills.	_____
Transportation - Costs for field trips and other visitations directly related to training.	_____
Educational Materials - Costs for slides, movies, etc. used for instruction.	_____
Other General Expense - (Specify)	_____
Total	$_____

(G) Miscellaneous Program Expense:

Any other costs which should be included as part of the Medical Technology training program at your hospital should be described and itemized here.

Miscellaneous Cost	Average Annual Dollars
_____	$_____
_____	_____
Total	$_____

SECTION III: STUDENT CONTRIBUTION TO COST REDUCTION

Since the students receiving the clinical training do participate in providing the clinical services produced by the laboratory areas, it is possible that their contributions may actually decrease some ordinary laboratory expense. If students do make a positive contribution to the clinical laboratory output, estimate by what percentage their program cost (as developed in Section I-C) may be decreased due to student productivity.

(Pg.2) Total for Laboratory Areas $_____. Decrease Cost by _____%.

Percentage multiplied times dollars equals net $_____ decrease.

SECTION IV: SUMMARY OF PROGRAM COSTS (OPTIONAL)

Note: Completion of this section is optional. All necessary calculations for compilation of costs will be made in the Office of Program Coordination.

Section I.

Part A:	Salary Cost	$_____
Part B:	Contributed Cost	_____
Part C:	Total Area Cost	_____
Part D: (If calculated)	Fringe Benefit Cost	_____

Total Salary and Related Costs $_____

Section II.

Part E: General Program Expense $_____

Note: Either: Dollars per student times the number of students times twelve months ($ x students x 12 = annual $)

Or: Dollars per month times twelve months ($ x 12 = annual $)

Part F:	Average Annual Expense	_____
Part G:	Miscellaneous Expense	_____

Total General Expense $_____

Section III.

Reduction in Program Cost $_____

TOTAL PROGRAM COST:

	Section I	$_____
Plus	Section II	_____
Minus	Section III	_____

Grand Total $_____ Yearly Program Cost

SECTION V: CRITICISM

Do you feel this "Program Cost Review" is appropriately designed to outline and accurately estimate the costs associated with your hospital's School of Medical Technology?

Please list any reservations or conditions you may have regarding the use of the information provided in this "Review".

Please list any suggestions you may have that would improve the utility and accuracy of this "Review".

If the Medical Technology School in your hospital was discontinued, what effect would this action have on your staff?

Would your staff be _____increased, _____decreased, _____unchanged.

THANK YOU VERY MUCH FOR YOUR TIME AND HELP.